Canada

# Telecommunications Policy Review Panel Final Report 2006

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# Final Report 2006

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Review Panel

Groupe d'étude sur le cadre
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2006 [redacted]

106-05393/

March 2006

The Honourable Maxime Bernier, P.C., M.P.
Minister of Industry
5th Floor, West Tower
235 Queen Street
Ottawa, Ontario K1A 0H5

Dear Minister,

In April 2005, our Panel was appointed to review Canada's telecommunications policy framework and recommend on how to modernize it to ensure that Canada has a strong, internationally competitive telecommunications industry that delivers world-class services for the economic and social benefit of all Canadians. In particular, the Panel was asked to recommend on:

1. how to implement an efficient, fair, functional and forward-looking regulatory framework that serves Canadian consumers and businesses, and that can adapt to a changing technological landscape
2. mechanisms to ensure that all Canadians continue to have an appropriate level of access to modern telecommunications services
3. measures to promote the development, adoption and expanded use of advanced telecommunications services across the economy.

The Panel drew on many sources of information and advice in conducting our review. We received almost 200 written submissions totalling many thousands of pages in response to our June 2005 Consultation Paper. These submissions provided valuable information, insights and proposals. We also benefited from presentations and discussions that took place at two policy fora in Whitehorse and Gatineau. Throughout the review, we consulted extensively with Canadian stakeholders and experts to seek their views, test ideas and explore options for our recommendations.

We were very encouraged by the high level of interest shown in the review by the telecommunications industry, consumer groups, community associations, research centres, other stakeholders and ordinary Canadians. Their contributions were very valuable, as were the contributions we received from departments and agencies of the federal government, the provinces and territories, and municipalities. We also found considerable international interest in the review, and we have drawn on the experience and advice of researchers, policy makers and regulators in other countries.

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Thanks to the support our review received from all of these parties, we believe we have carried out our mandate as fully as possible within the ten months allotted — a relatively short period of time in which to conduct a fundamental review of such a broad set of issues.

Canadians have been leaders in telecommunications. As telecommunications and information and communications technologies generally become increasingly important contributors to productivity growth, economic competitiveness and social well-being, it is vital that we remain leaders. This will only be possible if Canada's telecommunications policy and regulatory framework is continuously reformed — so Canadians can reap the full economic and social benefits provided by the increasingly competitive telecommunications markets — while protecting the interests of consumers and contributing to the achievement of important Canadian social values.

In our report, we recommend means designed to better achieve these goals.

Gerri Sinclair

Hank Intven

André Tremblay

## Acknowledgment

The Panel would like to acknowledge the many contributions made throughout its review process by the people and organizations who took an interest in our work.

First and foremost, we would like to thank those who made written submissions to the Panel. We received approximately 200 written submissions, totalling thousands of pages, many supported by useful studies and external data. Valuable submissions came from companies, industry and other associations, consumer groups and other non-government organizations, universities, academic experts and interested individuals. Others came from departments and agencies of the federal government, provinces, territories and municipalities. Many of the submissions were of very high quality — and all demonstrated that significant time, expertise, energy and resources were devoted to helping the Panel conduct its review. The ideas and analysis presented in the submissions provided solid input that was used in preparing our report and recommendations.

In addition to the written submissions, the Panel received very valuable input at two public policy fora. These events gave us an opportunity to listen to the views of experts from Canada and other countries on the issues set out in our terms of reference. The first forum on broadband access, which took place in Whitehorse, Yukon, on September 9, 2005, provided valuable assistance in understanding the issues faced in delivering broadband access across Canada — particularly "North of 60." The second forum on telecommunications policy, held in Gatineau, Quebec, from October 24 to 26, 2005, assembled some of Canada and the world's leading telecommunications and ICT experts. The high-quality presentations and lively debates at this event provided an excellent opportunity to explore and assess perspectives and international trends on the issues faced by the Panel.

As part of the review process, members of the Panel also met with policy makers, regulators and other telecommunications experts and stakeholders in Washington, D.C., London, U.K., Brussels, Dublin, Geneva, Paris, Tokyo and Seoul to obtain first-hand experience on the issues and concerns in other countries related to their telecommunications policy and regulatory frameworks. In addition, we received valuable information from the International Telecommunication Union, the Organisation for Economic Co-operation and Development, as well as policy makers and telecommunications stakeholders from a number of other countries. The assistance from Australia and New Zealand was particularly helpful. We are grateful to the government, regulatory, non-government and industry representatives who took time to meet with us and share their views on current telecommunications policy issues. In preparing our report and making our recommendations, we have drawn heavily on the experience of other countries, and wish to thank all of these friends of Canada for their generous contribution of time and insights.

The Panel also appreciated receiving information and advice from a wide range of Canadians during the course of its review, at a wide range of informal meetings and discussions during the ten months of our review. We learned from the valuable insights provided by consumers, First Nations organizations and other non-government organizations, government and regulatory officials, industry representatives and their professional advisors, and many other stakeholders in the future of telecommunications — and of Canada. We were repeatedly impressed with the importance that Canadians accord to the future of telecommunications policy and the role of information and communications technology in improving their lives.

The Panel was supported by a dedicated secretariat of government officials and consultants that included experts in telecommunications policy and regulation. The Panel would like to acknowledge the contributions made by all of the members of the secretariat and thank them for their dedication, patience, perseverance and unflagging support throughout the review process. Their work was essential in developing the Panel's report and its Consultation Paper, and in reviewing and assessing the numerous submissions we received, in organizing the Panel's policy forums, and arranging the meetings and briefings that took place throughout the review. We particularly appreciated their support throughout the lengthy working sessions and other discussions, extended conference calls, late-night meetings and multiple revisions to chapters and recommendations that were needed to produce our report.

This report would not have been possible without the hard work, insights and goodwill of a very large number of individuals. We apologize to those who have not been mentioned individually; we have avoided such mentions so as not to diminish the role of many other valuable contributors.

Gerri Sinclair
Hank Intven
André Tremblay

Ottawa

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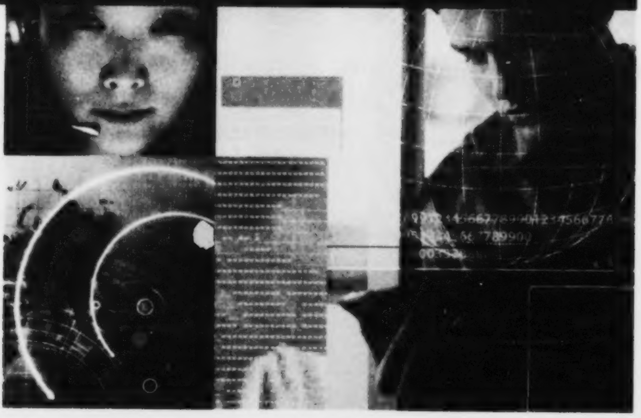
# Executive Summary



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The Telecommunications Policy Review Panel believes Canada's telecommunications policy and regulatory framework has generally served Canadians well. It has resulted in industry performance and service levels that rank among the best in the world. However, telecommunications technologies and markets today are in the midst of a profound transformation, and the Panel believes the policy and regulatory framework should change to reflect the new environment.

Telecommunications markets are being revolutionized by the rapid adoption of Internet Protocol (IP)-based networks, broadband and wireless technologies and by the convergence of previously distinct information and communications technologies (ICTs). Over the past two decades, most Canadian telecommunications markets have completed the transformation from monopoly to competition. At the same time, there has been an increasing recognition that ICTs have become essential "general purpose technologies" that contribute to many aspects of Canada's economic prosperity and social well-being.

The innovative ICT products and services coming onto the market can provide significant benefits to Canadian consumers and businesses. However, they are challenging the relevance of some elements of Canada's telecommunications policy and regulatory framework, and they pose new risks to the international competitiveness of the Canadian economy.

The Panel concludes that it is time for significant changes to Canada's current policy and regulatory approaches, some of which date back to the early part of the last century. The Panel's report proposes changes to permit the Canadian telecommunications industry to respond more rapidly to new technology and market developments. These proposals seek to accelerate the pace of deregulation of competitive telecommunications markets and will rely more on market forces to achieve Canada's economic goals. At the same time, the proposals will strengthen and better target regulatory approaches to achieve important social objectives and protect consumers' interests in the more competitive environment.

## Telecommunications Policy Objectives and Regulation

The Panel believes the telecommunications policy objectives set out in the *Telecommunications Act* should be clarified and applied consistently by all agencies of the Government of Canada. Outdated and inconsistent objectives currently set out in the Act should be eliminated. The new objectives should focus on three broad goals:

- promoting affordable access to advanced telecommunications services in all regions of Canada, including urban, rural and remote areas
- enhancing the efficiency of Canadian telecommunications markets and the productivity of the Canadian economy

- enhancing the social well-being of Canadians and the inclusiveness of Canadian society by meeting the needs of the disabled, enhancing public safety and security, protecting personal privacy and limiting public nuisance through telecommunications networks.

In addition to clarifying the policy objectives, the *Telecommunications Act* should establish the following new guidelines for government and regulatory action:

- Market forces should be relied upon to the maximum extent feasible as the means of achieving Canada's telecommunications policy objectives.
- Regulatory and other government measures should be adopted only where market forces are unlikely to achieve a telecommunications policy objective within a reasonable time frame, and only where the costs of regulation do not outweigh the benefits.
- Regulatory and other government measures should be efficient and proportionate to their purpose and should only minimally interfere with the operation of market forces to meet the objectives.

All major government policies and regulatory measures should include a statement describing how they comply with these objectives and new guidelines.

### Economic Regulation

Over the past 20 years, Canada's telecommunications markets have become increasingly competitive. In the large majority of today's telecommunications markets, competitive forces can be relied on to ensure that Canadians receive a wide range of services at prices and on conditions that are among the best in the world. Therefore, it is time to reverse the current presumption in the *Telecommunications Act* that all services should be regulated unless the Canadian Radio-television and Telecommunications Commission (CRTC) issues a forbearance order. This should be replaced with a legislative presumption that services will not be regulated except in specified circumstances designed to protect end-users or maintain competitive markets.

The report recommends comprehensive changes to the regulatory framework to accelerate the job of deregulating telecommunications markets, while retaining essential protections for end-users and for the maintenance of competitive markets. These changes include:

- removing the statutory requirement that all telecommunications services of telecommunications common carriers must be regulated unless the CRTC has forborne from regulation, and clearly limiting economic regulation to markets where a service provider has "significant market power"
- applying economic regulation symmetrically to all service providers, based on whether they have significant market power, regardless of the technology they use
- moving away from before-the-fact (*ex ante*) regulatory prescriptions to approaches that place greater reliance on after-the-fact (*ex post*) regulatory intervention, based on verified complaints of significant market problems

- phasing out economic regulation of all basic retail transmission services over a 12–18-month period, except in markets where there has been a specific ruling that significant market power continues to exist
- phasing out a range of current regulatory restrictions that affect the introduction and pricing of retail services, including pricing restrictions on discretionary retail services as well as restrictions on price differentiation and targeted competitive pricing
- when services remain subject to CRTC tariff regulation, replacing the current requirements for prior regulatory approval of tariffs with a provision that tariffs will automatically come into effect seven days after filing unless the CRTC suspends or disallows the tariff
- phasing out the current requirement that telecommunications service providers must make their "non-essential" facilities and services available to competitors on an "unbundled basis" at regulated rates, and replacing it with a system that creates better incentives to invest in the construction of new competitive telecommunications networks, with future wholesale arrangements for "non-essential" facilities and services based on negotiations between service providers rather than on regulatory prescription
- continuing the requirement that telecommunications service providers must make "essential" facilities and services available to competitors
- extending the regulatory rights of competitive local exchange carriers (CLECs) to include all local telecommunications resellers who agree to accept the related service obligations.

The report makes a number of other recommendations to reduce or eliminate the current level of CRTC economic regulation. However, such regulation would continue in markets where there is significant market power, such as in rural and remote Canadian markets. The report also recommends a new approach to control anti-competitive conduct in telecommunications markets on the basis of complaints made on an *ex post* basis, rather than by prescribing detailed *ex ante* restrictions governing the provision of services.

### Telecommunications Competition Tribunal

After reviewing the strengths and weaknesses of the Canadian regulatory framework and comparing it with the frameworks of other member countries of the Organisation for Economic Co-operation and Development (OECD), the Panel has decided to recommend a new approach to dealing with competition issues in telecommunications markets. The Panel notes that the regulatory frameworks of most other OECD countries differ from Canada's in a number of respects:

- There is greater reliance on the application of specific rules developed in modern competition law. By contrast, the competition-related powers of the Canadian *Telecommunications Act* grant the regulator a broad discretion to define and prevent whatever it considers to be "unjust discrimination" or "undue preference" in relation to the provision of services or charging of rates by carriers.

- Competition law is applied to the telecommunications sector by means of legislation and regulatory authorities that are specifically designed for telecommunications, rather than by relying on general-purpose competition law and authorities.
- There is better coordination between telecommunications regulators and competition authorities and between the laws and policies they apply than has been the case in Canada.

Based on its analysis of the Canadian and international experience, the Panel recommends establishing a Telecommunications Competition Tribunal (TCT) as a transitional mechanism to expedite the change from the traditional Canadian approach to telecommunications regulation to the more competitive deregulated approach recommended in the report.

The proposed TCT should not be a new government institution, but rather a joint decision-making mechanism involving the CRTC and the Competition Bureau. It should combine the telecommunications sector expertise of the CRTC with the competition policy expertise of the Competition Bureau. It should facilitate the application of conventional competition policy to the specific circumstances of telecommunications service markets. The TCT should operate as a telecommunications sector-specific competition authority, assuming responsibility to apply industry-specific competition law based on the civil provisions of the *Competition Act*. It should also become the single authority responsible for telecommunications merger reviews. The Competition Bureau should retain responsibility for the application of criminal and misleading advertising provisions of the *Competition Act*.

The mandate of the TCT should include:

- conducting market analysis to determine when specific telecommunications markets should be deregulated on the grounds that no service providers continue to hold significant market power
- ruling on complaints that basic retail services are subject to significant market power and should therefore be subject to CRTC economic regulation
- dealing with complaints that anti-competitive practices have resulted or are likely to result in a significant lessening or prevention of competition, based on the application of the principles of competition law as adapted to the circumstances of telecommunications markets
- dealing with certain other issues related to the application of competition policy to telecommunications markets, including the definition of "essential facilities" that must be made available by service providers to competitors.

Unlike the Competition Bureau, the TCT should have timely decision-making powers and remedies as well as specific telecommunications market experience. Unlike the CRTC, it should not generally establish restrictions on telecommunications market behaviour on an *ex ante* basis. Its mandate should be to apply *ex post* remedies to punish or control anti-competitive conduct in cases where it determines, based on the evidence, that such conduct has resulted or is likely to result in a significant lessening or prevention of competition.

The proposed TCT should have:

- three members, including senior members of the CRTC and the Competition Bureau and a chair appointed by the federal Cabinet
- a small administrative staff, headed by an executive director
- professional staff to be assigned by the CRTC and the Commissioner of Competition, depending on the skills and experience required for its caseload
- power to retain expert advisors on a temporary basis, where the requisite expertise is not available from the CRTC or the Competition Bureau.

In order to prevent duplication of resources, the TCT should rely on the legal powers and administrative regime of the CRTC. Reliance on the staff and other resources of the CRTC and the Competition Bureau should significantly reduce its costs of operation, relative to the costs of establishing a new regulatory institution.

The proposed TCT should be a transitional mechanism. The *Telecommunications Act* should include a sunset provision terminating the TCT's functions at the end of five years, unless there continues to be significant market power in a substantial number of telecommunications markets at that time. The Panel proposes a general review of telecommunications policy after five years. At that time, it should be possible to further reduce the regulation of telecommunications markets.

### Technical Regulation

Technical regulation should ensure safe and efficient use of telecommunications facilities and promote rapid deployment of advanced telecommunications and ICT networks throughout Canada. In this regard, the CRTC's regulatory powers should be clarified to ensure that it can deal effectively and efficiently to resolve certain types of access disputes that can delay expansion of telecommunications infrastructure across Canada. These powers should include clear legal authority to:

- resolve disputes over rates or conditions of access to poles, towers and other support structures of electrical distribution companies, after consultation with any provincial or territorial regulator that has dealt with such matters in the relevant jurisdiction
- require sharing of towers for radio transmission equipment and prohibit exclusive rooftop arrangements by wireless service providers, both for environmental reasons and efficient service deployment
- resolve disputes over access to in-building wiring, ducts, risers, equipment rooms and other necessary facilities in multi-tenant buildings as well as other spaces necessary to locate wireline or wireless networks to serve the public
- resolve disputes over access to public property such as rights-of-way.

Regulation of the radio spectrum will be an increasingly important determinant of the rate of expansion of advanced ICTs throughout Canada. Recognizing the increasing dynamism and innovation in wireless telecommunications markets, Canada's trading partners are moving away from the old prescriptive models of spectrum assignment. Instead, they are increasingly relying on market-based approaches to regulate the radio spectrum. In addition, the convergence of telecommunications services has caused most other OECD countries to combine spectrum regulation with other telecom regulatory functions in a single independent regulatory authority.

The Panel believes the increased convergence of wireless and wireline telecommunications and broadcasting technologies calls for a more consistent and unified regulatory approach. Such an approach could be facilitated by moving the current spectrum regulatory and licensing functions of the Minister of Industry to the CRTC. This move would be consistent with international practice. A recent OECD report recommends that Canada should adopt the same approach. This would increase the transparency of spectrum regulation and provide the CRTC with a better overview and insights into the wireless developments. It would also harmonize the policies and enhance the considerable regulatory expertise located in two regulatory institutions that currently function quite separately.

Prior to the transfer of spectrum regulation functions to the CRTC, Industry Canada should complete its current review of Canadian spectrum policy to:

- provide a clear policy mandate for the CRTC in exercising its new authority to regulate Canada's radio spectrum
- ensure consistency of the new policy with international best practices
- ensure Canada's ability to take leadership in the deployment of advanced wireless telecommunications services.

In developing the new spectrum policy, Industry Canada should take into account work completed as part of its ongoing spectrum policy framework review, and make certain to address the following areas:

- ensuring that adequate spectrum is available to meet demand for deployment of fixed and mobile broadband networks across Canada
- ensuring that licensed and licence-exempt spectrum is available for the Ubiquitous Canadian Access Network/Ubiquité Canada or U-CAN broadband access program recommended in Chapter 8 of this report
- relying as much as possible on market-based approaches to spectrum management
- recovering and "refarming" previously assigned spectrum that is unused or underutilized to accommodate new services
- moving toward establishment of market-based exclusive spectrum rights (i.e. the ability to buy, sell, lease spectrum holdings) and the elimination of barriers to the development of secondary markets in spectrum

- reviewing both current licence fees to correct fee imbalances that may exist among service providers and the application of market-based pricing approaches for non-auctioned licences
- streamlining and standardizing licensing processes
- continuing the use of regulatory approaches to increase the opportunity for Canadians to have an expanded choice of service providers, such as spectrum caps and reservations for new market entrants.

### Social Regulation

The Panel recognizes the growing importance of telecommunications services in promoting the social as well as economic welfare of Canadians. It therefore recommends that the policy objectives set out in the *Telecommunications Act* should clearly recognize key social objectives, namely:

- promoting affordable access to advanced telecommunications services in all regions of Canada, including urban, rural and remote areas
- meeting the needs of the disabled, enhancing public safety and security, protecting personal privacy and limiting public nuisance through telecommunications networks.

Implementation of the social objectives of telecommunications policy should recognize the realities of the more competitive telecommunications markets. Where social regulation is used to pursue fairness and other social objectives, it should be competitively neutral and minimize distortions of the competitive process. Social regulation may be funded from within the industry if the cost is small, but should be funded from general government funds if the cost is large. For example, the latter approach should be used for major social programs such as the Panel's proposed U-CAN program for expanding broadband access to all areas of Canada.

To reflect the changing marketplace, the Panel also recommends amending the *Telecommunications Act* to impose an explicit obligation on incumbent telephone companies to continue to provide basic telephone service. The CRTC should be empowered to define such service and approve applications to discontinue service. This obligation should apply in all areas where the companies have network infrastructure available.

To ensure adequate protection for consumers in the new, market-driven environment, the Panel also recommends the establishment of a new form of "ombuds" office, to be called the Telecommunications Consumer Agency (TCA). The TCA should have authority to resolve complaints from individual and small business retail customers of any telecommunications service provider. The report proposes that the TCA should operate as a self-funding, independent, industry-established agency, subject to guidelines set by the CRTC. As is the case in other countries with similar models, telecommunications service providers should all be required to be members in good standing of the TCA.

The Panel considers it important to ensure that Canadian consumers are not denied access to the wide range of new and innovative Internet services. The report notes that there is a growing concern that increasingly deregulated telecommunications service providers could, for strategic competitive reasons, decide to block or limit access to some Internet applications and content. Therefore the Panel recommends that the *Telecommunications Act* should confirm the right of Canadian consumers to access publicly available Internet applications and content by means of all public telecommunications networks that provide access to the Internet. This provision should:

- authorize the CRTC to administer and enforce these consumer access rights
- take into account any reasonable technical and efficiency constraints on providing such access
- be subject to legal constraints on access, such as those established in criminal, copyright and broadcasting laws.

The Panel believes telecommunications service providers in most cases have little or no incentive to interfere with customer access. However, the principle of open access to the Internet is sufficiently important that it justifies a new regulatory provision to ensure that it is maintained.

### Information and Communications Technology Policy

ICTs will play an increasingly important role in the economic and social welfare of Canadians. There is a growing consensus among economists that ICT investment fosters productivity growth. This evidence should not be ignored by the Canadian government, since our national productivity growth is significantly lower than that of the U.S. There is a growing body of evidence that an important contributing factor to Canada's relatively weak productivity performance is our much lower level of ICT investment than that in the U.S.

Investing in ICTs by itself is no guarantee of higher productivity. The economic research suggests that productivity gains come through ICT investment when combined with investment in organizational transformation, including such areas as business process re-engineering, supply chain management, more efficient marketing and distribution practices, and workforce training. The economic evidence indicates that it is "smart adoption" of ICTs that is the essential precondition to increasing the productivity and competitiveness of the Canadian economy.

The Panel therefore recommends that the Prime Minister mandate the Minister of Industry to lead the development and implementation of a national ICT adoption strategy containing components aimed at:

- strengthening ICT adoption by all Canadian businesses, especially by Canada's small and medium-sized enterprises (SMEs)
- strengthening the linkages between ICT sector research and development (R&D) and the adoption of ICTs throughout Canada's economy and society
- enhancing the use of ICTs by governments to improve their efficiency and quality
- promoting ICT adoption skills development on a coordinated national basis
- developing security, confidence and trust in the online environment.

To increase the productivity of Canada's SME sector, the Panel recommends that the government should develop a tax credit to increase the rate of "smart adoption" of ICTs in this sector.

To support the development of these and other components of a national ICT adoption strategy, the report recommends:

- establishing a National ICT Adoption Centre within the federal government to conduct policy research and analysis on ICT adoption issues, to coordinate policies, programs and other measures aimed at promoting ICT adoption among federal government departments and agencies and with the provinces, and to be a lead advocate for the effective use of ICTs, particularly among SMEs
- establishing a blue ribbon National ICT Advisory Council, whose members would provide public and private sector leadership for the smart adoption of ICTs by Canadian governments, business and other organizations, as well as advice on measures to achieve the objectives of the national ICT adoption strategy.

### Connectivity: Completing the Job

As part of its national ICT adoption strategy, the Panel recommends that Canada should set a clear goal of remaining a global leader in the deployment of broadband networks in all regions of the country, including urban, rural and remote areas. The Canadian government should establish an objective of achieving ubiquitous broadband coverage no later than 2010. Ubiquitous coverage should be defined as the same level of coverage that Canada has traditionally achieved for wireline telephone service; that is, broadband network access should be available to over 98 percent of Canadian households.

Canadian policy and regulation should recognize that vigorous competition in our telecommunications markets will continue to be the main driving force in maintaining Canada's global leadership in providing broadband access. However, the goal of achieving ubiquitous broadband coverage by 2010 will not be achieved without some government action, particularly in high-cost rural and remote areas.

Therefore, a specific, targeted, new government-funded infrastructure program should be developed to complete the job of expanding broadband coverage in areas that are uneconomic for commercial service providers. The purpose of this program should be to fill in the gaps of broadband coverage, where the market is not likely to provide coverage in the near future. A new "Ubiquitous Canadian Access Network" (U-CAN) program should be the successor to the current Broadband for Rural and Northern Development (BRAND) pilot program and the National Satellite Initiative (NSI).

The U-CAN program, to be developed in consultation with provincial and territorial governments, community organizations and service providers, should provide limited subsidies to selected service providers to complete the job of providing broadband coverage in unserved areas.

The Panel recommends that, unlike BRAND, the proposed U-CAN program should run a series of least-cost subsidy auctions to select financially and technically qualified service providers able to complete the jobs of providing backhaul network capacity and local access networks to uneconomic areas. The auctions should be competitively neutral, and bidders should be invited to propose the most efficient and effective technologies available to meet regional requirements. The report sets out detailed recommendations for the operation of the U-CAN program.

### Policy-making and Regulatory Institutions

A number of changes should be made to the structure and process of Canada's federal policy-making and regulatory institutions to bring them into line with better practices of other OECD countries and to facilitate implementation of the proposed new policy and regulatory framework. These changes include:

- drawing a clearer line between policy making and regulation, and improving the effectiveness of the institutions performing those functions
- enhancing Industry Canada's policy-making capabilities to provide more timely and in-depth advice to the Minister of Industry on legislation, policy directions and reviews of telecommunications and ICT policy, which should be conducted every five years, and establishing a policy research program to provide better Canadian research and data in support of informed policy making in the telecommunications and ICT sectors
- streamlining and increasing the professional capacity of the CRTC by:
  - reducing the number of commissioners from 13 to five members (at least in the telecommunications area)
  - compiling short lists of qualified candidates for CRTC positions, recruited through open national competitions based on professional experience and qualifications
  - increasing compensation for commissioners and selected expert telecommunications staff to market-based levels
- giving the CRTC clear authority and sufficient budget to retain expert consultants at market rates, where they are required to provide specialized expertise or to avoid regulatory delays due to heavy workload requirements
- transferring to the CRTC Industry Canada's remaining regulatory and licensing functions involving international submarine cables, satellite orbital slots and telecommunications equipment.

Other procedural reforms recommended in this report deal with:

- expediting the CRTC's decision-making process
- empowering the CRTC and the TCT to impose administrative monetary penalties to enforce telecommunications laws
- putting greater reliance on alternative dispute resolution by the CRTC

- making greater use of public notices and consultations on proposed policies and regulatory actions by Industry Canada and the CRTC
- removing licensing requirements for service providers that do not have significant market power and replacing them with simple registration requirements
- updating the CRTC's Telecommunications Rules of Procedure, and bringing them into line with the proposed new regulatory framework
- reviewing and rationalizing the structure of licence and regulatory fees charged by the CRTC and Industry Canada.

**Implementation**

The Panel suggests that the government should implement its recommendations in two phases:

- In the first phase, the government should issue policy statements endorsing the development of a national ICT adoption strategy as well as the implementation of a new regulatory framework, and take steps to reform the policy-making and regulatory institutions. In addition, it would use its powers under the *Telecommunications Act* to issue a policy direction to the CRTC to interpret the policy objectives of the Act in a manner that is broadly consistent with major reforms recommended in the Panel's report.
- During the second phase, recommendations requiring changes to existing legislation should be implemented.

**Afterword**

In an Afterword to this report, the Panel deals with an issue that was not part of its mandate but is inextricably related to it — the future evolution of Canadian broadcasting policy.

The Panel believes the same technological and market forces that drive the need for changes in telecommunications policy also generally apply to Canadian broadcasting policy. Prime among these are the widespread deployment of IP-based services on telecommunications, cable and wireless networks, and the resulting convergence of broadcast distribution markets with telecommunications markets. These trends call into question the sustainability of some of the current approaches to broadcasting policy and regulation and their impact on the future evolution of the telecommunications industry.

The Panel believes it is important to develop effective policies to promote the presence of Canadian content in the converging broadcasting and Internet spaces. Those policies should be designed to advance the development of advanced broadband networks by the cable industry as well as the traditional wireline and wireless telephone industries. The policies should recognize that all these industries are developing increasingly powerful and integrated broadband networks. These networks will all be able to deliver a wide range of content and applications, irrespective of their current classification as "broadcasting" content. Consumer demand will increasingly replace government regulation as the prime driver in the evolution of these advanced networks and of the content they provide. Canada's future broadcasting policies should recognize these technological and market trends. Canada should develop sustainable policy and regulatory approaches to ensure that its cultural and content production communities can take advantage of technological and market trends and not be undermined by them.

To this end, the Panel proposes a comprehensive review of Canada's broadcasting policy and regulatory framework. It proposes that this review should be conducted by an independent group of experts. One important goal of the review should be to develop a more consistent and competitively neutral regulatory approach to the rapidly converging broadcasting and telecommunications industries. The Afterword lists issues that the Panel feels should be addressed as part of this review.

The Afterword also deals with Canada's telecommunications foreign investment rules. The Panel concludes that liberalization of the restrictions on foreign investment in Canadian telecommunications common carriers would increase the competitiveness of the telecommunications industry, improve the productivity of Canadian telecommunications markets, and be generally more consistent with Canada's open trade and investment policies.

The Afterword notes that the investment restrictions have been maintained in large part due to concerns about the impacts on Canadian broadcasting policies. In particular, there have been concerns about the impacts on Canadian broadcasting policy of increased foreign investment in Canadian cable and satellite broadcast distribution undertakings (BDUs). The Panel notes other areas of significant concern about such liberalization, including impacts on Canadian head offices, employment of high-tech personnel in Canada and national security.

The Panel suggests that the proposed broadcasting policy review should resolve issues related to the separation of Canadian broadcasting "content" policy from policies for the "carriage" of telecommunications. Such a separation has been effected in telecommunications policies in the European Union and elsewhere. If implemented in Canada, such a separation would permit creation of symmetrical foreign investment rules for traditional telecommunications carriers as well as the BDUs that now operate in the same telecommunications markets.

Pending completion of this review, the Panel proposes a phased liberalization of restrictions on foreign investment in telecommunications service providers that are not subject to the *Broadcasting Act*.

The first phase should replace the currently inflexible restrictions on foreign investment with a "public interest" test to review new foreign investments in specific telecommunications markets. Such investments should require approval by the federal Cabinet under a new provision established in the *Telecommunications Act* to protect Canada's important strategic and security interests. In the first phase, it is proposed that investments in market entrants and telecommunications common carriers holding less than a 10-percent share of any relevant telecommunications market should be presumed to be in the public interest, unless there is evidence to the contrary. The second phase, involving further liberalization, should follow completion of the proposed broadcasting policy review.

## 1

## Chapter 1

# The Need for Change

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## A Tradition of Leadership

Canada has a long tradition of leadership in telecommunications. We have been global innovators since telecommunications began with the invention of the telegraph a century and a half ago. Since then, our policy and regulatory frameworks have supported the growth of a world-class industry that consistently has provided high-quality products and services to Canadian consumers and businesses at affordable prices.

Telecommunications has been one of Canada's great success stories. However, to continue this tradition of leadership, the industry and government players that make up the telecommunications sector must today respond to challenges unlike any they have faced before. These challenges spring from technology, product and service innovations that are transforming telecommunications worldwide. These innovations are creating opportunities and threats — for established players and new entrants in the telecommunications industry, for industries and public institutions that rely on telecommunications, and for Canadian consumers and citizens.

In its February 23, 2005, Budget Statement, the Government of Canada recognized the critical importance of telecommunications to Canada's future. It underlined the need for a modern policy framework to govern the sector, particularly to ensure that the telecommunications industry continues to support Canada's long-term competitiveness.

On April 11, 2005, the Telecommunications Policy Review Panel was appointed. The Panel was given a mandate to review the current telecommunications framework and to recommend a modern telecommunications policy and regulatory framework that would ensure Canada continues to have a strong, internationally competitive telecommunications industry that delivers world-class products and services at affordable prices for the economic and social benefit of all Canadians.

This chapter describes the major technology and market challenges the Panel believes must be addressed by a modern telecommunications policy:

- Chapters 2 to 6 set out the changes that must be made to Canada's telecommunications policy and regulatory frameworks to ensure that the Canadian telecommunications industry remains a world leader.
- Chapters 7 and 8 discuss measures needed to help Canadians access and make more effective use of information and communications technologies (ICTs) in order to increase productivity and improve the delivery of public services.
- Chapter 9 proposes reforms to improve the efficiency and effectiveness of government policy-making and regulatory institutions.
- Chapter 10 proposes how the new telecommunications and ICT policies recommended by the Panel can be implemented quickly and effectively.

Before looking ahead, however, it is worth recalling how we came to be world leaders in telecommunications. To retain our position in the future, we must understand the roots of our past success.

### Industry Leadership

The Canadian telecommunications industry is one of Canada's most important industrial sectors.

The telecommunications services sector is the largest component of Canada's ICT industry (see text box). It produces almost half the industry's total gross domestic product (GDP). However, the importance of the telecommunications services sector cannot be measured by its size alone. It provides a fundamental infrastructure for the private enterprises and public services that use ICTs to design, develop and distribute their products, serve their customers and operate their businesses.

#### The Importance of Telecommunications Services

In addition to its enabling effects on the economy as a whole, the Canadian telecommunications services industry is a major industry sector in its own right, an important contributor to GDP and employment.

- The communications service industry, including telecommunications services and broadcast distribution accounts for 2.6 percent of Canada's GDP and 2.9 percent of capital expenditure.
- Canada's telecommunications market revenues amounted to $32.9 billion in 2003 and as such ranked 8th among member countries of the Organisation for Economic Co-operation and Development (OECD).
- In 2004, the telecommunications services industry had 114 346 employees, while broadcast distribution had 16 580 employees.

Source: Data taken from Industry Canada, *Telecommunications Services in Canada: An Industry Overview*, **http://strategis.ic.gc.ca/telecomservicesoverview**; Statistics Canada, Annual Telecommunications Statistics Database; and OECD *Communications Outlook 2005*.

The greatest impact of telecommunications in a modern knowledge-based economy is its role as an enabler of efficiency, productivity and innovation — in all industry sectors and public services and in all forms of economic and social activity. For this reason, a world-class telecommunications industry is essential for enhancing Canada's competitiveness in global markets as well as for creating economic prosperity and improving social well-being and the quality of life in all parts of the country.

Telecommunications has been one of Canada's leading areas of technological achievement. Many significant telecommunications "firsts" have taken place in Canada, from the early days of the telephone and radiocommunications to the development of digital switching, satellite and fibre optic technologies.

Technological innovation is only one source of telecommunications success. An industry must also lead in the deployment of networks based on these new technologies. It must use these networks to offer high-quality products and services that respond to customer demands and generate revenue streams to attract and reward investors. The ultimate test of leadership is success in the telecommunications marketplace.

Today, as the following examples demonstrate, Canada is a world leader in the deployment of many kinds of telecommunications networks and services, and Canadian consumers and businesses benefit from access to high-quality services at affordable prices.

### Local Telephony

Basic telephone service is ubiquitously available in Canada. Almost 99 percent of Canadian households subscribe to either a wireline or wireless access service, and residential wireline telephone service was subscribed to by approximately 96 percent of Canadian households in December 2004.[1] Canada's performance in this market segment measures up very well internationally. In 2004, Canada ranked seventh among OECD member countries and second among G7 member countries (behind Germany) in the percentage of mainline subscribers per 100 inhabitants.[2]

Canada's telephone services are also relatively inexpensive. An August 2004 OECD study on the prices of telephone services reported that Canada had the third lowest prices for residential users and the fourth lowest prices for business users among OECD countries, based on a comparison of composite baskets of telephone services and charges.[3]

### Cable

The Canadian cable industry has been a world leader in the deployment of cable networks, and most of these have now been upgraded to an all-digital broadband infrastructure. Currently, over 11.1 million Canadian homes — or 93.5 percent of the homes passed by cable — have high-speed cable Internet access available to them, and there are over 2.8 million subscribers to the service.[4] Advanced infrastructure and widespread availability has led Canada to be ranked first among OECD countries in terms of cable Internet penetration.[5]

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[1] See Affordability Monitoring Reports filed by major incumbent carriers with the CRTC, June 30, 2005. Available online at: **www.crtc.gc.ca/PartVII/eng/2004/8665/a53_200403345.htm**

[2] Source: International Telecommunication Union (ITU) website: **http://www.itu.int/ITU-D/ict/statistics**. A mainline is a telephone line connecting the subscriber's terminal equipment to the public switched network and which has a dedicated port in the telephone exchange equipment.

[3] OECD, *Communications Outlook 2005* (August 2005). Composite basket includes international calls and calls to mobile networks.

[4] Statistics Canada, *Broadcasting and Telecommunications*, Catalogue no. 56-001-XIE, October 2005.

[5] OECD, "Broadband subscribers per 100 inhabitants, by technology," June 2005. Available online at: **http://www.oecd.org/document/16/0,2340,en_2649_34225_35526608_1_1_1_1,00.html#data2004**

### Digital Networks

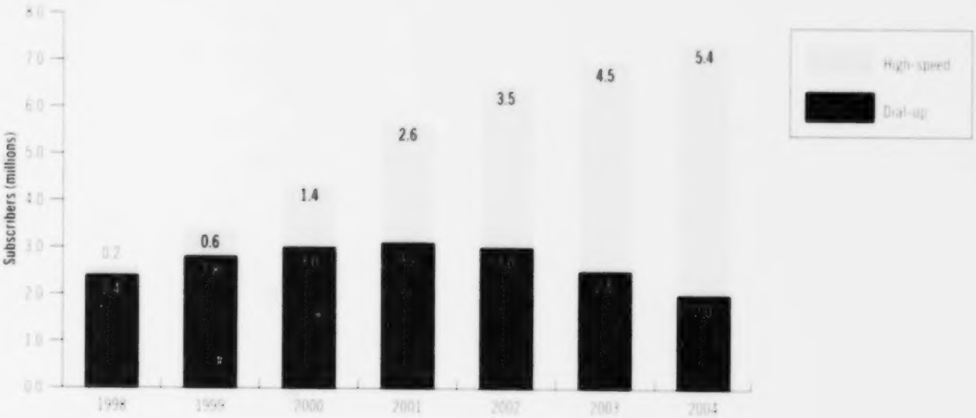
Canada has also been a world leader in deploying digital wireline networks. In 1993, Canada had 85 percent of its access lines digitized (the fourth highest percentage in the OECD at that time) and reached 100 percent digitization in 1998.

### High-speed Internet

As a result of strong competition between the telecommunications and cable industries, Canada was also a world leader in the deployment of broadband Internet. In 1996, Canada became the first country to deploy DSL (digital subscriber line) technology, and among the first to deploy cable modem technology for high-speed Internet access. Canada's broadband networks are widely deployed throughout more densely populated areas. Penetration rates are also relatively high and are being extended into rural and remote areas as a result of private and public initiatives.

The number of retail Internet subscribers in Canada, including dial-up and high-speed customers, exceeded 7.4 million in 2004, representing 59 percent of households. High-speed access via DSL or cable modem, also known as "broadband," now is the dominant means of accessing the Internet in Canada. In 2004, some 73 percent of subscribers used one or other of these technologies, up from 17 percent in 1999. Figure 1-1 illustrates the growth in the residential Internet access market and the shift from low- to high-speed access technologies.

**Figure 1-1. Residential Internet Subscribers**



Source: CRTC, *Report to the Governor in Council: Status of Competition in Canadian Telecommunications Markets* (Ottawa: CRTC, various years).

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Source: OECD, *Communications Outlook 2005* (August 2005), Table 4.12; and OECD, October 2001 and November 2003.

CRTC, *Report to the Governor in Council: Status of Competition in Canadian Telecommunications Markets* (Ottawa: various years); 2005 report available online at: http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2005/gic2005.pdf

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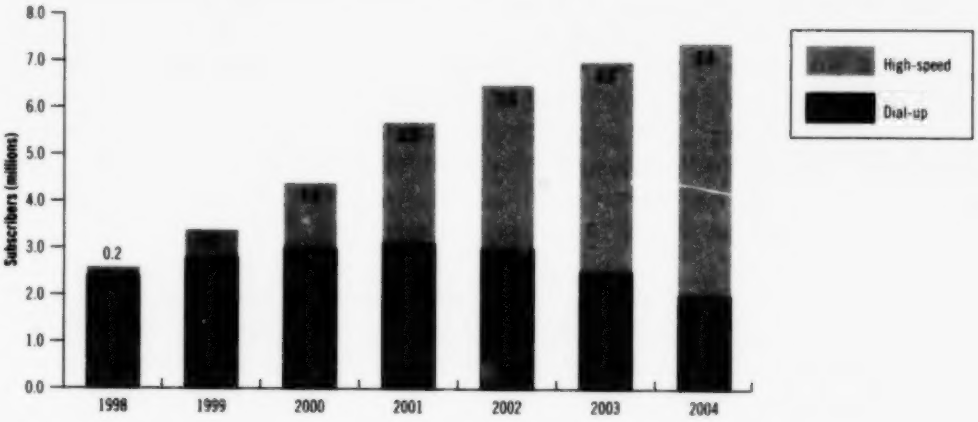

Source: CRTC, *Report to the Governor in Council: Status of Competition in Canadian Telecommunications Markets* (Ottawa: CRTC, various years).

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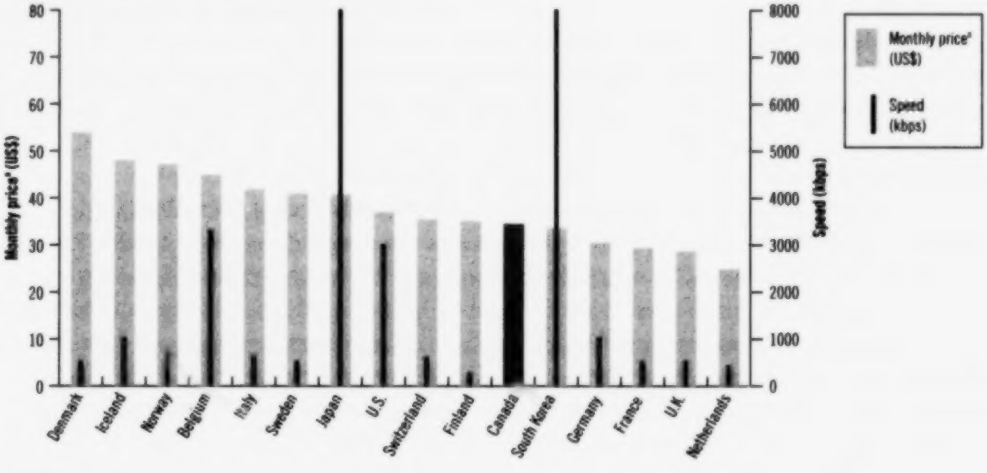
[6] Source: OECD, *Communications Outlook 2005* (August 2005), Table 4.12; and OECD, October 2001 and November 2003.

[7] CRTC, *Report to the Governor in Council: Status of Competition in Canadian Telecommunications Markets* (Ottawa: various years); 2005 report available online at: **http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2005/gic2005.pdf**

In terms of price and speed, Canada's broadband services measure up well against the services available in many other countries. Figure 1-2 compares the relative price and speed for DSL service in a number of countries in November 2004. The comparisons are based on selected DSL service provider offerings in the respective countries.

**Figure 1-2. Comparison of Price and Speed of DSL Services, Selected OECD Countries, November 2004**



*Includes tax.

Source: Based on OECD, *Communications Outlook 2005* (August 2005), Table 6.16.

## The Evolution of Policy and Regulation

For most of its history, telecommunications has been a regulated industry. In spite of the significant amount of deregulation that has taken place in Canada and other countries in recent years, key elements of the industry remain subject to a detailed regulatory framework that applies specifically to the telecommunications sector. This means that the performance of the telecommunications industry is heavily influenced by the laws, policies and regulations that govern the telecommunications industry, as well as on the products and services developed and deployed by individual companies.

Over the past century and a half, Canada's telecommunications policy and regulatory framework has evolved in parallel with the industry, beginning with the passage of the first *Telegraphs Act* in 1852. The invention of the telephone by Alexander Graham Bell was followed by a flurry of investment in new local telephone systems by the Bell Telephone Company of Canada as well as dozens of other investors and governments. Following an initial period of largely unregulated growth that saw competing telegraph and telephone service providers established at the local, provincial and national levels, there have been three main stages in the history of Canadian telecommunications policy and regulation.[8]

### Public Utility Regulation of Telephone Services (1906–1969)

The *Special Act* passed by Parliament in 1880 gave Bell Canada a charter to provide telephone service throughout the country, but the company concentrated its investment in Ontario and Quebec. In the Atlantic provinces and British Columbia, private companies were chartered to provide these services. In Manitoba, Saskatchewan and Alberta, the provincial governments assumed this responsibility, after acquiring Bell Canada's regional networks. In addition, municipally owned and small-scale independent companies continued to provide service under provincial regulation in many areas of the country.

As a result of the bottom-up growth of the telecommunications industry during the late 19th and early 20th centuries, jurisdiction over the industry came to be divided between the federal government, which, for example, regulated Bell Canada in Ontario and Quebec as well as the Telephone Company in British Columbia and the provinces that regulated provincial, independent and municipal telecommunications service providers. In Saskatchewan, the government-owned telephone company for most of its history was run as an unregulated public utility, with pricing and major investment decisions approved by the provincial Cabinet.

In spite of these jurisdictional divisions, a similar approach to telecommunications policy emerged. Whether they were privately or publicly owned, telecommunications companies were regulated according to general principles that applied not only to telecommunications but also to other common carriers, such as railways, and other kinds of public utilities.

In the case of the federal government, the telecommunications industry was regulated by the Canadian Transport Commission and its predecessors pursuant to sections of the 1906 *Railway Act*, which required telecommunications carriers to provide service at just and reasonable rates and which prohibited unjust discrimination. In addition, following a model that had been developed in the United States early in the 20th century, there was an implicit bargain that telephone companies would provide affordable service to customers and to make it available throughout their territory, in return for the privilege of operating on a monopoly basis. The tariffs and rates of return of private telephone companies were regulated in line with these principles. Over time, similar approaches were applied to provincially owned telecommunications companies, which were largely regulated by provincial public utility commissions.

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[8] See Peter Grant, *Canadian Communications Law and Policy, Vol. 1* (Toronto: Law Society of Upper Canada, 1988) for a history of the evolution of Canadian telecommunications policy and regulation. See also Robert E. Babe, *Telecommunications in Canada* (Toronto: University of Toronto Press, 1990).

### Responding to the Growth of Information Services (1969–93)

By the late 1960s, it had become clear to Canadian policy makers that telecommunications had the potential to be more than Plain Old Telephone Service (POTS). In the previous two decades, economic and social trends had created greater demand for telecommunications services in both business and consumer markets. Television broadcasting had transformed popular culture and was beginning to have a major impact on business practices and social life. In addition, mainframe computers were becoming more common in large businesses, government departments and universities, and were beginning to be linked by data communication networks.

In recognition of the expanding scope and growing importance of telecommunications, the federal government established a Department of Communications in 1969. The responsibilities of the department included telecommunications and broadcasting policy, radiocommunications policy and regulation, programs to extend telecommunications and broadcasting service in remote areas, research and development, and procurement of telecommunications services for the federal government. In 1980, reflecting convergence between various communications media, responsibility for the federal government's arts and culture programs was added to the mandate of the Department of Communications.

Convergence also led to the establishment of a regulatory authority responsible for both broadcasting and telecommunications in 1976, when responsibility for regulation of telecommunications services was added to the broadcasting regulation mandate of the Canadian Radio and Television Commission, which was renamed the Canadian Radio-television and Telecommunications Commission.

### The Growth of Competitive Markets (1993 to Present)

The current era in Canada's telecommunications policy was heavily influenced by two major developments: the finding by the Supreme Court that the federal government had sole jurisdiction over telecommunications carriers throughout the country[9]; and the passage of the 1993 *Telecommunications Act*.

The 1993 Act did not implement a comprehensive new regulatory framework. Many of the key regulatory provisions of the Act were based on two predecessor statutes, the *Railway Act*[10] and the *National Telecommunications Powers and Procedures Act*.[11] In particular, the new Act continued, with only minor amendments, the traditional regulatory standards for approval of the rates and conditions of service of telecommunications carriers; namely, that rates should be "just and reasonable" and that there should be no "unjust discrimination" in the charging of rates or in the provision of services.[12]

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[9] See Alberta Government Telephones v. (Canada) Canadian Radio-television and Telecommunications Commission [1989] 2 S.C.R. 225, and Téléphone Guèvremont Inc. c. Québec (Régie des télécommunications) [1994] 1 R.C.S. 878.

[10] *Railway Act*, repealed, 1996, c.10, s. 185.

[11] *National Telecommunications Powers and Procedures Act*, repealed, 1993, c.38, s. 130.

[12] See ss. 27.(1) and (2) of the *Telecommunications Act*. Available online at: **http://laws.justice.gc.ca/en/t_3.4/162202.html**

However, the 1993 Act was significant in several ways. It established for the first time a set of national telecommunications policy objectives. It also paved the way for gradual deregulation of the telecommunications industry as competition emerged. It gave the Canadian Radio-television and Telecommunications Commission (CRTC) the power to forbear from regulating markets that had become sufficiently competitive to protect consumer interests. It enacted into law, for the first time, a 1987 policy to limit foreign ownership of facilities-based telecommunications carriers, but placed no restrictions on the ownership of resellers.

The CRTC used the powers under the *Telecommunications Act* to introduce a detailed new regulatory framework.[13] This framework was designed to increase competition and reduce the number of services subject to regulation, while ensuring that Canadians living in rural and remote areas of the country continued to have access to affordable services.

The *Telecommunications Act* gave the Governor-in-Council (effectively the federal Cabinet) the power to issue policy directives to the CRTC. However, successive governments have taken a "hands off" approach to regulatory policy and have left it to the CRTC to use its broad powers and discretion under the Act to regulate the transformation of the Canadian telecommunications industry from one characterized by monopolistic public utilities into a dynamically competitive industry. The policies of the federal government have focused on increasing telecommunications "connectivity" among Canadians and on promoting the adoption of ICTs throughout the economy as well as in government. These policies have included the various components of the Information Highway initiative and the Connecting Canadians agenda, as well as the e-Commerce strategy, the Government On-Line initiative and the Task Force on Spam.[14]

As Figure 1-3 illustrates, Canada's past policy and regulatory framework has been successful in supporting the modernization of the Canadian telecommunications industry. It has allowed the industry to continue to provide universal access to high-quality, affordable traditional telecommunications services. At the same time, it has fostered the growth of newer services such as wireless, Internet access and direct-to-home (DTH) satellite television.

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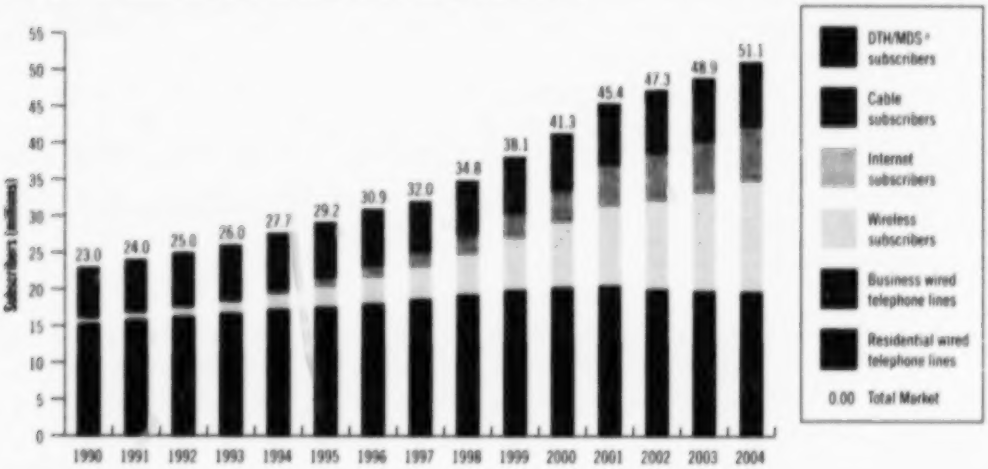
[13] Review of Regulatory Framework, Telecom Decision CRTC 94-19. Available online at: **http://www.crtc.gc.ca/archive/ENG/Decisions/1994/DT94-19.HTM**

[14] See Information Highway Advisory Council, *Connection, Community, Content: The Challenge of the Information Highway* (Ottawa: Supply and Services Canada, September 1995); Information Highway Advisory Council, *Preparing Canada for a Digital World*, Final Report (Ottawa: Supply and Services Canada, September 1997), available online at: **http://www.iigr.ca/pdf/documents/768_Preparing_Canada_for_a_D.pdf**; National Broadband Task Force, *The New National Dream: Networking the Nation for Broadband Access* (Ottawa: Industry Canada, June 2001), available online at: **http://broadband.gc.ca/pub/program/NBTF/index.html**; Government On-Line Advisory Panel, *Connecting with Canadians: Pursuing Service Transformation* (Ottawa: Government of Canada, December 2003), available online at: **http://www.gol-ged.gc.ca/pnl-grp/reports/final/final00_e.asp**; *The Challenge of Change: Building the 21st Century Economy*, Background Paper for the Conference on e-Commerce to e-Economy Strategies for the 21st Century, Ottawa, September 27–28, 2004, available online at: **http://www.e-economy.ca/epic/internet/inec2ee-ceace.nsf/en/home**; and Task Force On Spam, *Stopping Spam: Creating a Stronger Safer Internet* (Ottawa: Industry Canada, May 2005), p. 1, available online at: **http://e-com.ic.gc.ca/epic/internet/inecic-ceac.nsf/vwapj/stopping_spam_May2005.pdf/$file/stopping_spam_May2005.pdf**

**Figure 1-3. Communications Service Subscribers, 1990–2004**



*DTH = direct-to-home systems, MDS = multipoint distribution systems.

Source: Compilations by the Telecommunications Policy Review Panel based on Statistics Canada's quarterly survey of telecommunications service providers, Catalogue no. 56-002-XIB; the CRTC's *Broadcast Distribution Statistical and Financial Summaries*, various years; and selected company annual reports.

## Where Do We Stand Today?

Canadian telecommunications industry performance ranks at or near the top in most traditional telecommunications service markets. However, the pace of change in the telecommunications sector is accelerating on a worldwide basis. Change is being driven by new technologies, increasing consumer and business demand for new products and services, and new approaches to policy and regulation. In today's rapidly evolving telecommunications environment, many other countries are catching up with Canada — and some have begun to surpass us. In such a fast-moving world, the Panel believes that looking backwards and congratulating ourselves on past performance is of diminishing value.

## Benchmarking Canada's Performance

### Telecommunications Market

- In 2003, Canada's telecommunications market, as measured by revenue, was the eighth largest among OECD member countries. Canada ranked 12th in terms of population, 18th in terms of revenue per capita, 12th in terms of revenue per subscriber, and 23rd in terms of revenue per gross domestic product.
- Canada's largest telecom carrier, Bell Canada, was the 13th largest telecommunications company in the OECD, generating 1.44 percent of total OECD telecom revenue.

### Wireline

- Canada has achieved 99.5 percent coverage and 96 percent penetration of wireline telephone service, as measured by households (down slightly from 98 percent penetration in 1999, largely because of wireless substitution).
- Canada ranks seventh in the OECD and second among G7 member countries in the proportion of mainline subscribers per 100 inhabitants.
- Canada ranks third and fourth in the OECD in pricing for residential and business users, respectively.
- In 1993, Canada had 85 percent of its access lines digitized and, as such, was the fourth to achieve this level in the OECD.

### Cable and DSL Networks

- Canada was the second country to deploy cable modem technology, in 1996.
- Canada was the first country to deploy DSL technology, in 1997.
- Canada ranks first in the OECD in terms of cable Internet penetration (June 2005), with 93.5 percent of Canadian homes passed by cable having high-speed cable Internet access.

### Broadband Availability and Use

- Until 2003, Canada ranked second in terms of broadband penetration, or broadband subscribers per 100 inhabitants. In June 2005, Canada ranked sixth.
- Canada ranks sixth in terms of lowest available broadband pricing in the OECD.

### Wireless

- Wireless coverage is available to 97.7 percent of the Canadian population.
- Wireless penetration in Canada ranks second last in the OECD, and represents fewer than 50 subscribers per 100 inhabitants.
- In pricing of wireless services, Canada ranks 10th in the OECD based on low usage, seventh based on medium usage, and 13th based on high usage.

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Note: All data are as of mid-year or year-end 2004, unless otherwise indicated.

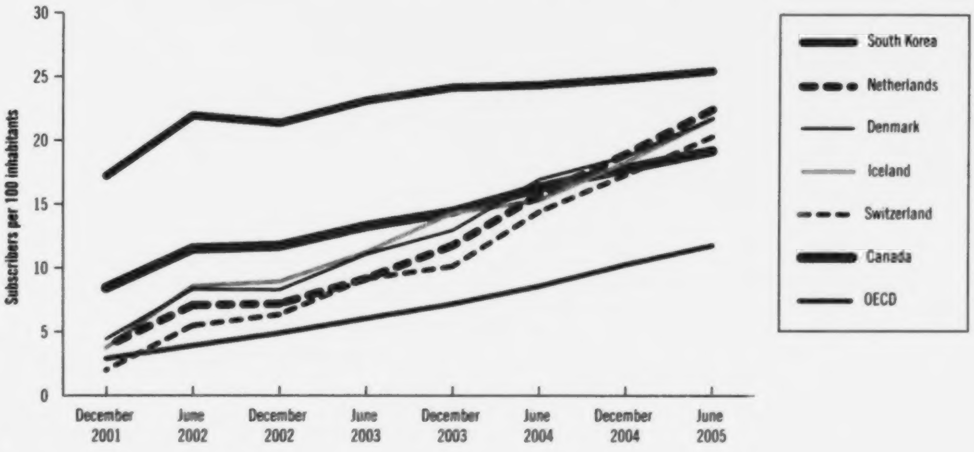
## The Canadian Telecommunications Industry: Leadership Threatened

Over the course of its work, the Panel has become concerned that the Canadian telecommunications sector performance has not kept pace with its earlier achievements. In particular, Canada has not remained at the leading edge of development and deployment in the two key growth areas of the telecommunications sector — broadband and wireless. Although we have made progress in both these areas, we are not moving forward as quickly as other countries. Unless it improves its performance in delivering advanced broadband and wireless services, Canada risks slipping behind other countries in providing the infrastructure to deliver the kinds of economic and social benefits needed to improve the productivity and competitiveness of the Canadian economy, improve the quality and efficiency of government and public services, and build a more inclusive society. In the Panel's view, Canada cannot afford to be complacent.

### Broadband: Our Lead Is Slipping

Canada has been a world leader in broadband availability and use. In June 2005, we still ranked sixth among OECD countries in broadband penetration per 100 inhabitants.[15] However, we ranked second only two years ago, and our position is beginning to slip as other countries pursue aggressive strategies for rolling out broadband access at increasingly higher speeds. Our rate of growth in broadband penetration has been surpassed by competitor nations (Figure 1-4), as other countries also deploy fibre and other advanced access technologies and services at very affordable rates. Some of the countries that have surpassed us may offer a better environment for broadband deployment because of size, terrain and population density. Nevertheless, the Panel believes that losing ground in this area is cause for concern because of the economic advantages and social benefits that widespread use of broadband telecommunications services can yield.

**Figure 1-4. Broadband Penetration, Top Six OECD Countries, 2001–2005**



Source: Based on OECD *Communications Outlook*, various years.

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[15] OECD, *OECD Broadband Statistics, June 2005.* Available online at: http://www.oecd.org/document/16/0,2340,en_2825_495656_35526608_1_1_1_1,00.html

In addition to falling behind in broadband penetration, Canada lags other countries, including Japan, South Korea and the United States, in the deployment of fibre broadband technology. In Japan, telecommunications providers such as NTT and USEN Broad Networks have been providing service via ultra-high-speed Internet access (fibre-to-the-home (FTTH)) with speeds up to 100 Mbps since 2001. Other providers such as KDDI have been offering FTTH services since 2003. By mid-2004, ultra-high-speed broadband access was already available to 80 percent of Japan's citizens through a combination of FTTH and fibre-to-the-node (FTTN) technologies and, as of September 2005, Japan had 2.8 million FTTH customers connected.[16] In South Korea, the first FTTH installations began in 2001 and, by 2004, 85 percent of South Korean households had access to FTTH. It is expected that, in 2007, all South Korean households will be able to have 100–1000 Mbps broadband access.[17] The incumbent telecommunications provider, Korea Telecom, launched its commercial FTTH service in 2005, offering upstream and downstream data speeds of up to 100 Mbps.[18]

In North America by September 2005, FTTH systems passed 2.7 million homes, primarily in the U.S. with over 320 000 connected customers.[19] In the U.S., smaller incumbent local exchange carriers (ILECs), competitive local exchange carriers (CLECs) and government-supported projects were the first to deploy FTTH locally, some before 2001. Some of the national telecommunications providers such as Verizon and SBC have now begun large-scale deployments of their fibre-based networks. Verizon began deploying its fibre-to-the-premises (FTTP) network in May 2004, and began offering fibre broadband service in July 2004 and fibre-based television service in October 2005 in selected markets, currently allowing a maximum speed of 30 Mbps downstream and 5 Mbps upstream.[20] SBC plans to complete the deployment of its fibre network to 18 million customers by mid-2008, using a combination of FTTP and FTTN technologies, offering download speeds of 20–25 Mbps.[21] It expects to begin offering services on its fibre network in early 2006 in selected markets.

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[16] Thomas Bleha, "Down to the Wire," *Foreign Affairs* 84 (May/June 2005); and Steven Ross, "Fibre Systems Triple in a Year," *Broadband Properties* (November 2005), available online at: **http://www.broadbandproperties.com/2005issues/nov05issues/Fiber%20Systems%20Triple,%20Steven%20Ross.pdf**

[17] Roxanne B. Batson, *FTTH Content Business Case Study and the FTTH Industry in Korea* (WSN TV 75, Inc., 2004). Available online at: **http://www.ftthcouncil.org/documents/860825.pdf**

[18] World Markets Research Centre, *World Markets Telecoms: South Korea*, July 4, 2005.

[19] Render Vanderslice & Associates, *FTTH/FTTP Update* (October 4, 2005), available online at: **http://www.ftthcouncil.org/documents/732751.pdf**; and Ross, "Fibre Systems Triple in a Year."

[20] Verizon announced plans to have three million homes passed for its fibre broadband system, and one million homes passed for its fibre-based FiOS TV service by the end of 2005. Additionally, Verizon plans to pass an additional three million homes by year-end 2006. Source: Verizon press releases, May 19, 2004 onward; Dennis Weller, Chief Economist, Verizon, Presentation at TPRP Policy Forum, October 24, 2005; and Ross, "Fibre Systems Triple in a Year."

[21] SBC expects to scale up the offerings and markets offered beginning in mid-2006; see SBC press release, November 3, 2005, available online at: **http://www.sbc.com/gen/press-room?pid=4800&cdvn=news&newsarticleid=21874**

In Canada, by contrast, deployment of FTTH is still in its early stages, with only a very limited number of residential communities having access to fibre networks. For example, in February 2005, Aliant announced plans to conduct Atlantic Canada's first FTTH trial during 2005 (30 Mbps of bandwidth).[22] By year-end 2005, Bell Canada deployed FTTN in 2048 neighbourhoods serving over 500 000 households, mainly in the greater Toronto and Montréal areas. Bell plans to offer service to these neighbourhoods in 2006 with speeds of up to 12 Mbps. Bell also plans FTTH and FTTN deployment to reach 85 percent of urban households in the Windsor–Québec City corridor by 2008, offering speeds of up to 26 Mbps.[23]

In addition to fibre deployment, some countries are already converging their wireless and wireline networks to provide connectivity "anytime, anywhere and by anyone."

In South Korea, Korea Telecom (KT) launched a pilot of the Broadband convergence Network (BcN) in October 2005. This project aims at providing seamless broadband connectivity across wireline and wireless networks over an upgraded Internet Protocol (IP) platform. KT hopes to have 24 million fixed phone users on the BcN by 2010.[24]

In Japan, the U-Japan (Ubiquitous Network Society) strategy, launched in 2003, aims to facilitate seamless connectivity from any location and to develop applications that make use of the ubiquitous network to solve social issues such as nursing and welfare support systems, food traceability systems, and home security systems. Japan's targeted national ICT strategy aims to support seamless and secure human-to-human, human-to-machine, machine-to-human, and machine-to-machine communications over its pervasive next-generation network (NGN) infrastructure. Japan also plans to shift its focus from wireline to wireless networks and hopes to have reached 100 percent of its citizens with high-speed or ultra-high-speed Internet access by 2010. Japan intends to accomplish this goal by facilitating access to spectrum and upgrading its IP infrastructure.[25]

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[22] Aliant Inc. press release, February 7, 2005, "Aliant launches Atlantic Canada's fastest broadband connection," available online at: **http://www.aliant.ca/english/news/news2.asp?YYYY=2005&currentPage=11&Keyword=&BU1=&BU2=&BU3=&BU4=&BU5=&BU6=&BU7=&BU8=&FromDay=1&FromMonth=1&FromYear=2005&ToDay=31&ToMonth=12&ToYear=2005&id=1167&frompage=news**

[23] Bell Canada VP Network Planning and Provisioning statement, December 5, 2005; BCE 2005 year-end and fourth quarter results; and presentation by Eugene Rotman, BCE Business Review Conference 2005, December 15, 2004.

[24] KT news release, October 6, 2005, available online at: **http://147.6.114.70/kthome/eng/press/press/press_kt_view.jsp?page=1&news_seq=69&actiontype=&sel_year=&sel_mon=&key_word=**

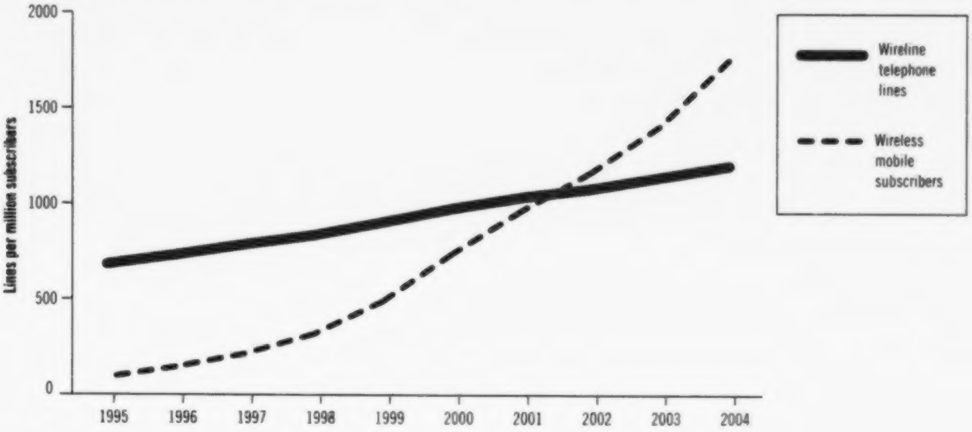
[25] Presentation by Takuo Imagawa, Ministry of Internal Affairs and Communications (MIC), Japan, "Japan's Policy Initiatives toward Ubiquitous Network Societies," April 7, 2005. Available online at: **http://www.itu.int/osg/spu/ni/ubiquitous/Presentations/5_imagawa_japan.pdf**

Deployment of NGNs has been relatively slow in Canada in both the wireline and wireless environments. The Panel believes this lag will affect Canada's international competitiveness. More rapid deployment of advanced telecommunications infrastructure would allow Canada to capitalize on the potential of high-speed networks to improve productivity and foster economic growth through the provision of advanced services. The Panel is concerned that by losing its lead in broadband, Canada may be missing out on a multitude of economic and social benefits, and may be losing "first mover" advantages from rapid deployment of advanced network infrastructure.

### Wireless: Are We Really in the Game?

A shift from wireline to wireless services is taking place around the world. Over the past two decades, wireless has evolved from a marginal technology serving a relatively small number of customers into a mainstream technology deployed in all major market segments, including voice, data and broadcasting. Today there are significantly more wireless service subscribers in the world than fixed wireline subscribers (Figure 1-5).

**Figure 1-5. World Wireline and Mobile Wireless Subscribers, 1995–2004**



Source: International Telecommunication Union website database: **http://www.itu.int/ITU-D/ict/statistics/**

The rapid rise of wireless penetration has been driven by a combination of demand pull and technology push.

- For a number of countries lacking universally accessible, affordable, high-quality telecommunications services — but recognizing that such services were necessary for their economic and social development — wireless technology has provided an opportunity to achieve these objectives by "technology leapfrogging"; that is, by rolling out services more quickly, more cheaply and with greater flexibility than would have been possible using wireline technology. Thanks to the development of wireless telecommunications services, substantial progress has been made toward closing the "digital divide" on a global basis, particularly in countries like China, India, Brazil, Russia and the transition economies of eastern Europe and South East Asia.
- In highly developed economies, the "any time, any place" attributes of wireless technology initially were seen as productivity-enhancing complements to wireline technology in both the private and public sectors. As the functionality of wireless technology increased, it has become increasingly clear that wireless not only has the potential to substitute for wireline technologies in many market segments, but also better matches the communication needs of many businesses and consumers.
- The explosive growth of wireless markets has led telecommunications equipment manufacturers to focus R&D efforts on the wireless market. As a result, there has been an upsurge in innovation in wireless products, which has further increased user demand for wireless services.

Today, Canada's wireless carriers provide coverage to around 98 percent of the Canadian population, and there are approximately 15 million wireless subscribers in the country, representing almost 50 percent penetration.[26] Even though Canada has done well in terms of growth in wireless and data services relative to traditional telecommunications services, as Figure 1-6 illustrates, our wireless penetration is second last in the OECD. Compared with our major trading partner, the U.S., Canada lags significantly, but both countries have fallen far behind European nations. Figure 1-7 shows that the penetration gap between Canada, the U.S. and Europe has grown over time.

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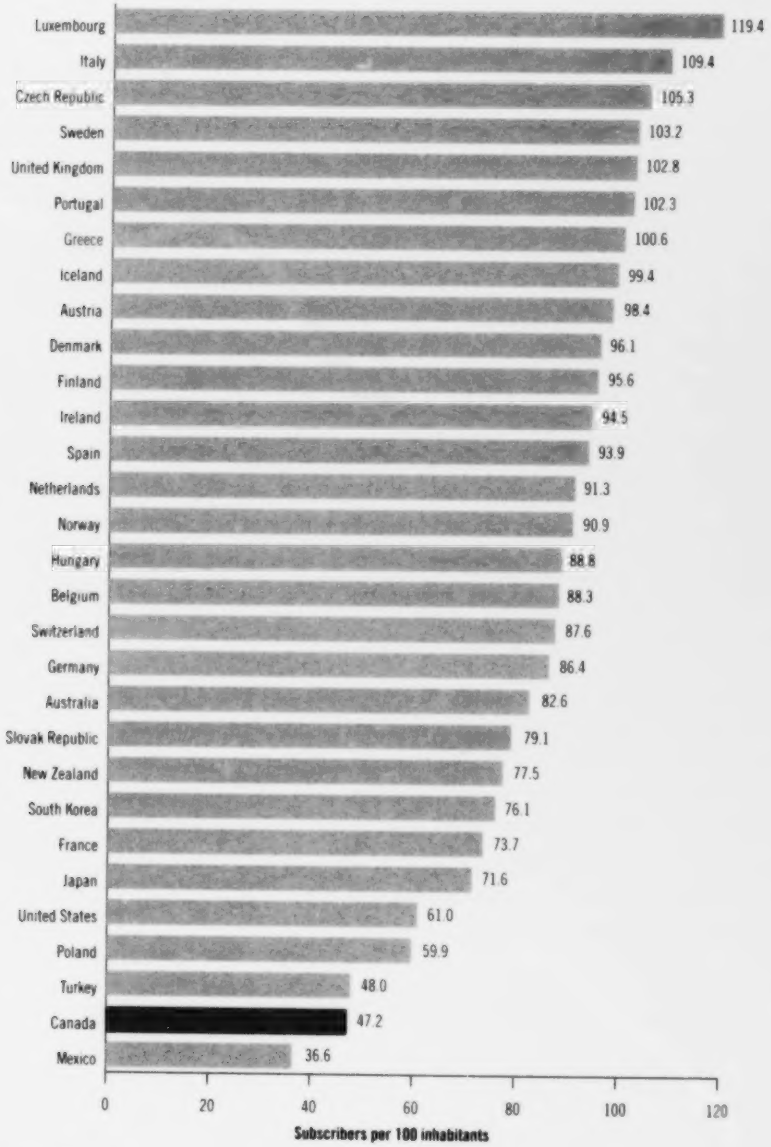
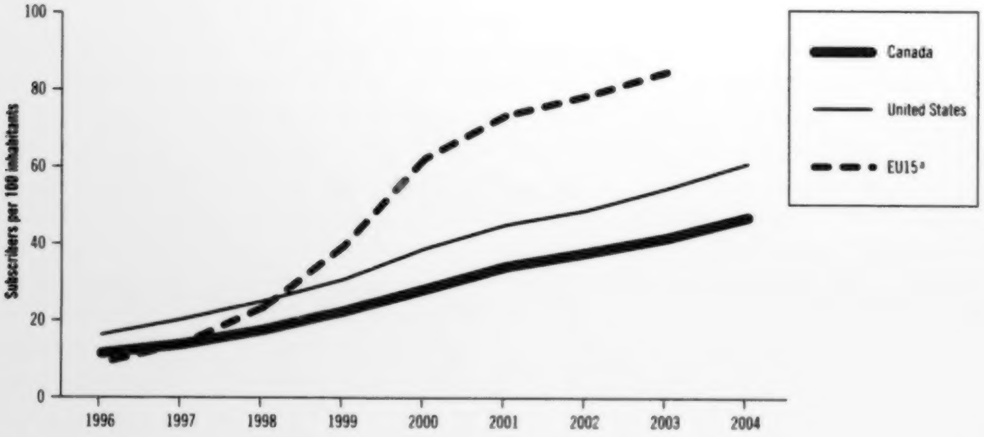
[26] Source: CRTC, *Status of Competition in Canadian Telecommunications Markets* (Ottawa: CRTC, October 31, 2005), available online at: **http://www.crtc.gc.ca/ENG/publications/reports/PolicyMonitoring/2005/gic2005.pdf**; and CRTC, Telecom Data Collection 2004, available online at: **http://www.crtc.gc.ca/dcs/eng/2004/**

**Figure 1-6. Mobile Wireless Subscribers per 100 Inhabitants, OECD Countries, 2004**



Source: ITU website.

Figure 1-7. Mobile Wireless Penetration, 1996–2004



ᵃEU15 refers to the European Union member states prior to 2004

Source: 1996–2003 data taken from OECD, *Communications Outlook 2005*; 2004 data taken from ITU website.

A number of factors are often cited to explain why wireless services have achieved a significantly higher level of penetration in Europe than in North America. These factors include:

- historical differences in the quality, availability and pricing of wireline telephone services in the two regions, which are said to have made wireless more attractive to European consumers
- different approaches to tariffing wireless services, which may have created stronger incentives to subscribe in Europe
- Europe's leadership in developing and deploying second- and third-generation wireless technologies, which resulted in superior products and services being available to European consumers for a period of time.

In the Panel's view, there is relatively little to be gained by focusing on historical differences between the performance of the wireless industry in Europe and North America. Canada's most important comparator is the United States, because of our similar geography, demographics and telecommunications markets, and because the United States is our principal trade partner and competitor. Additionally, the U.S. and Canada have historically adopted comparable approaches to pricing wireless services and have followed one another closely in the deployment of new services and technologies. Nevertheless, an examination of the growth of wireless in the United States and Canada reveals a persistent and growing gap between the rates of the two countries.

In addition to having lower mobile wireless penetration than the U.S., Canada has much lower usage of wireless services. Merrill Lynch estimates that Canadian usage is approximately 52 percent of the average U.S. usage, measured in minutes of use (MOU) per month.[27] Table 1-1 presents Merrill Lynch's estimates for Canada, the U.S. and a number of other developed OECD countries. Although Canadian monthly usage per subscriber appears to compare favourably with that of other countries having higher levels of penetration, European countries and Japan have significantly higher usage of data services than Canada and the U.S. Although this is not reflected in the minutes of use statistics, it is demonstrated in Canada and the U.S.'s lower wireless data share of average revenue per user (ARPU). While Canadian and U.S. data share of ARPU is similar, Canada's ARPU is significantly lower than that in the U.S.

Table 1-1 Wireless Minutes of Use and Average Revenue per User, Second Quarter 2005

| | **Minutes of Use (monthly)** | **Average Revenue per User (US$)** | **Data Share of Average Revenue per User (%)** |
|---|---|---|---|
| Canada | 392 | 44 | 8 |
| United States | 757 | 55 | 7 |
| United Kingdom | 148 | 42 | 21 |
| France | 223 | 47 | 14 |
| Germany | 73 | 31 | 17 |
| Italy | 124 | 35 | 15 |
| Japan | 149 | 62 | 25 |

Source: Merrill Lynch, *Global Wireless Matrix 2Q05* (December 2005). Used with permission.

Canada also lags in the rollout of many new mobile wireless services and features. Perhaps the largest gap between Canada, the U.S. and other countries is with respect to the implementation of third-generation (3G) high-speed data services. Canadian deployment of 3G wireless systems lags not only the U.S. (2004), where every major operator is in the late stages of building and marketing these services, but also significantly lags deployment in Europe (2002), South Korea (2002) and Japan (2001). As already mentioned, 3G networks in Japan and South Korea are well under way and both countries are nearly at the point of convergence between their wireless and broadband networks nationally. In Canada to date, there has been only limited 3G rollout in a few large cities, and the Panel notes that separate spectrum for the service has yet to be allocated.

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[27] Source: Merrill Lynch, *Global Wireless Matrix 2Q05* (December 2005). Used with permission.

Canada has also lagged in the introduction of wireless local number portability.[28] This service was offered in several European and Asian countries between 1998 and 2000 (e.g. U.K., Netherlands, Sweden) and in the U.S. in 2003. In Canada, however, the wireless industry only recently announced its number portability implementation plan, with mandated nationwide availability scheduled not until March 2007 for national carriers.

In addition, mobile wireless pricing is significantly higher in Canada than in the U.S. and other countries. The Seaboard Group reported in July 2005 that the average mobile wireless customers in Canada pay 60 percent more than they would have if they had used a U.S. plan, and 19 percent more than the rates charged by European carriers.[29] These pricing differences may be explained by the relatively small number of mobile service providers in Canada. In the U.S., 97 percent of the population live in areas with three or more mobile providers, 87 percent live in areas with five or more mobile wireless operators, and 41 percent live in areas with at least six.[30] This is in contrast to Canada where, although 94 percent of the Canadian population has access to three or more wireless service providers, the maximum number of wireless carriers in any given area is three.[31]

The smaller number of mobile providers in Canada — and the fact that all three national wireless service providers are also owned by large telecommunications service providers that also provide wireline services[32] — may mean that there is less competition in the Canadian wireless market than in the U.S. market, which consequently has resulted in higher prices, less innovation, lower uptake and lower rates of usage.

After reviewing this evidence, the Panel concludes that Canada's mobile wireless industry lags behind its major trading partners on a number of key measures. This finding reinforces the Panel's belief that because of the growing importance of this segment, Canada should develop a more efficient and vibrant wireless industry.

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[28] Wireless local number portability enables mobile wireless customers to transfer phone numbers between wireless service providers and also between landline and wireless service.

[29] Seaboard Group, *Lessons for Canada: Wireless Pricing — A Cross-National Survey: U.S., Canada, and Europe* (July 2005). Available online at: **http://www.seaboardgroup.com/main/index.php?option=content&task=view&id=290&Itemid=123**

[30] FCC, *Tenth Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services* (September 30, 2005). Available online at: **http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-173A1.pdf**

[31] CRTC 2004 Telecom Data Collection. Available online at: **http://www.crtc.gc.ca/dcs/eng/2004/**. *Note:* A limited number of larger centres have resellers and MVNOs (mobile virtual network operators), but even these are not all independently owned from the three national carriers.

[32] In Canada, BCE Inc. owns Bell Mobility, Rogers Communications Inc. owns Rogers Wireless and Microcell, and TELUS Corp. owns TELUS Mobility. In the U.S., SBC-AT&T and BellSouth own Cingular-AT&T Wireless, and Verizon Communications Inc. owns Verizon Wireless. Sprint Nextel Corp. is the largest remaining independent wireless carrier, followed by T-Mobile USA, Inc. and All-Tel Corp.

## Policy and Regulation: Falling Behind the Times

The world is a different place today from what it was in 1993 when the current *Telecommunications Act* was passed and the federal government launched its Information Highway initiative.

### Telecommunications Policy

Over the past decade and a half, there has been a worldwide transformation of policy and regulatory frameworks in the telecommunications sector. This trend began with the privatization of publicly owned telecommunications operators and the introduction of competition in markets previously reserved for monopoly service providers. It continued as many countries sought to introduce policy and regulatory frameworks that relied primarily on market mechanisms and economic incentives. More recently, many countries have begun to supplement telecommunications sector-specific regulatory measures with a greater reliance on the principles of general competition law.

The results of these trends have been dramatic in every region of the world, whether measured by investment, product and service innovation, market growth, penetration rates, prices or employment. The telecommunications sectors of many developing countries and emerging economies have been transformed. Countries such as China, India and South Korea have emerged as major sources of demand and supply in the global market for telecommunications products and services. The digital divide is beginning to close in even the world's least developed regions.

Profound changes have also taken place in the telecommunications policy and regulatory frameworks of many industrialized countries. The European Union, individual European countries, Australia and New Zealand have all made significant changes in their telecommunications frameworks. So has the United States, which began the worldwide trend to transform telecommunications policy and regulation several decades ago.

In the Panel's view, the time has come to reform Canada's telecommunications policy and regulatory framework. In spite of the fact that Canada has one of the most competitive telecommunications markets in the world, we continue to have one of the most detailed, prescriptive and costly regulatory frameworks. This framework is particularly burdensome for Canada's major telecommunications service providers, who now face stronger competition in a number of market segments from well-established facilities-based rivals as well as from new entrants. The Panel believes the Canadian telecommunications industry has evolved to the point where market forces can largely be relied on to achieve economic and social benefits for Canadians, and where detailed, prescriptive regulation is no longer needed in many areas.

The issues related to reforming Canada's policy and regulatory framework as well as specific proposals for reform are set out in the balance of this report, particularly in Chapters 2, 3, 4, 5, 6 and 9.

### ICT Policy

Looking beyond the telecommunications industry to the ICT sector as a whole, the Panel notes that many developed countries and the emerging giants of the developing world have adopted policies that identify the ICT sector as a whole, including the telecommunications industry, as a foundation for their national strategies for promoting economic growth and more efficient government as well as achieving certain social development goals.

As noted in a previous subsection, since the 1970s, Canadian telecommunications policy has focused on much more than the regulation of the telecommunications industry. The multifaceted policy approach originally developed by the former Department of Communications in the 1970s and 1980s was continued in the 1990s by the Information Highway Advisory Council and the Connecting Canadians agenda. These policy initiatives have enhanced Canada's profile in various areas of ICT development.

For example, since 2000, the Broadband for Rural and Northern Development (BRAND) pilot program and the Government On-Line (GOL) initiative have made notable contributions to Canada's ICT policy. However, in comparing what the federal government is currently doing in the area of ICT policy with the initiatives that have been taken in many other countries, the Panel concludes that the Canadian government is not currently focusing sufficiently on ICT policy — an area that is critical to Canada's economic prosperity and social well-being. This conclusion is supported by our steadily declining standing in the various indices that have been constructed to compare the performances of various countries in using ICTs to further economic and social development.[33]

The Panel believes it is essential for the federal government to recognize the vital role that telecommunications and ICTs now play in every area of public policy, and to re-establish ICT policy as a national priority. Specific proposals related to establishing a national ICT strategy, including a program to complete the deployment of broadband networks in Canada, are set out in Chapters 7 and 8 of this report.

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[33] The Economist Intelligence Unit e-readiness rankings, 2005, ranked Canada tied for 12th with Germany, whereas Canada was 11th the year before. The World Economic Forum ranked Canada 10th in its 2004–2005 Network Readiness Index, dropping from sixth place in 2003–2004. See World Economic Forum, "The Global Information Technology Report 2004–2005," available online at: http://www.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme%5CGlobal+Information+Technology+Report

## Regaining Leadership

A vibrant, competitive telecommunications industry is needed to make Canada a world leader in telecommunications and to deliver economic and social benefits to all Canadians. To regain leadership, the Canadian telecommunications industry needs a policy and regulatory framework that removes impediments to competition and innovation, while protecting and advancing the interests of consumers and citizens. In constructing a framework that will achieve these objectives, the Panel believes it is necessary to recognize that the telecommunications industry is undergoing a fundamental transformation, which has profound implications for policy and regulation.

### Telecommunications Industry Transformation

The rapid change that is taking place in the telecommunications industry has been made possible by an ongoing revolution in the fundamental technologies for creating, processing, transmitting and storing information that underlie modern telecommunications networks. The same set of basic technologies now can be applied to many types of telecommunications, whether they involve voice, sound, text, data or video, or a mixture of media. The processing power and speed as well as the bandwidth capacity of these basic technologies continue to increase and their price continues to fall at exponential rates.[34]

The subsections that follow describe how these underlying technological trends have made it possible to break down and blur the boundaries that previously existed between different segments of the telecommunications industry, such as wireline and wireless. They have also made it possible to begin breaking down the boundaries between telecommunications, the Internet, broadcasting and other electronic media. As these boundaries disappear, competition is intensifying not only within the traditional telecommunications industry, but also among different industry sectors. These developments in turn are expanding the range of communication and information products and services available to businesses, public institutions and individual customers.

In this respect, the Panel focuses on three particularly important trends: the shift to Internet Protocol, open network architectures, and the convergence of industries.

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[34] The expression "Moore's Law" refers to the very rapid rate of increase in the information processing capacity of ICTs relative to cost for the past several decades, and the prediction that this will continue for the foreseeable future. Gordon Moore, one of the founders of Intel, made the original observation and prediction in 1965 in relation to the number and cost of components on integrated circuits. "Moore's Law" has since been applied to other ICTs, and debate continues over whether it will continue to hold. See, for example, Charles A. Eldering, Mouhamadou Lamine Sylla, and Jeffrey A. Eisenach, "Is There a Moore's Law for Bandwidth?," *IEEE Communications* 37 (10, October 1999): 117–21, available online at: **http://dl.comsoc.org/cocoon/comsoc/servlets/GetPublication?id=164125**

### The Shift to IP

Perhaps the most profound change taking place in telecommunications today is the recognition that the Internet and other technological developments that rely on IP are providing highly functional, new and efficient ways to transmit all forms of telecommunications, including voice, data and video services.

Unlike conventional telecommunications technology, which sets up dedicated communication paths between end-users (for example, the parties to a telephone conversation), IP allows any signal — whether voice, data or video — *to be broken up into packets of information*. These packets are then mixed together with packets generated from other sources and are routed to their final destination, sometimes through different interconnected networks, where they are reassembled and presented to the recipient of the message. This simultaneous sharing of transmission facilities leads to more efficient use of network resources, thereby lowering the cost of communication.

As it rapidly becomes the *de facto* standard for all kinds of communications, IP is creating a converged communications space in which all types of telecommunications media (voice, data or video) can be coded and carried, either exclusively or simultaneously, over a common underlying facility, or through the "network of networks" that make up the Internet.

The Panel observes that the shift to IP is affecting the telecommunications industry in several ways.

- Profound changes are taking place in network economics in relation to both capital and operating expenses. IP makes it possible to merge all services on the same infrastructure and the same logical network (the latter is often referred to as a "platform" for the different services it supports). This has the potential to significantly reduce the amount of capital that is required to build and maintain facilities. It also allows for better management of operating costs. The cable industry's rollout of IP-based voice services provides an example of the economic advantages of IP-based networks. Cox Communications, a U.S. cable company, estimates that the cost of deploying IP-based voice technology — US$267 per customer — is approximately half the cost of deploying traditional circuit-switched technology — US$527 per customer.[35] Over time, the costs of IP technology are expected to continue to fall more rapidly than circuit-switched costs. In Canada, Shaw Communications, a cable company, announced that its VoIP (voice over IP) service would require capital expenditures of $425–450 per subscriber for the first 200 000 subscribers, and $350 per incremental subscriber. RBC Capital Markets estimates a cable company would need 89 500 subscribers to break even on an investment in VoIP. In contrast, it estimates that capital expenditures for a telephone company to deploy video service would be $830 per line, and that 245 000 subscribers would be needed to break even.[36]

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[35] Cox Communications, "Whitepaper: Voice over Internet Protocol: Ready for Prime Time," May 2004. Available online at: **http://www.fcc.gov/oet/tac/7.28.04_TAC_Cox_VoIP_whitepaper.pdf**

[36] R. Talbot,"Canadian Telecom Services: Battle for the Broadband Home," *RBC Capital Markets*, January 27, 2004.

- Competition is increasing as IP reduces and in some cases almost eliminates economic barriers to entry in selected telecommunications market segments. This trend is clearly visible in the marketplace, as cable operators begin to offer local telephone services and as telecommunications network operators begin to offer video services on their broadband infrastructure. In addition to this facilities-based competition, companies like Primus and Vonage have entered both local and long distance telephone markets in competition with incumbent telephone and cable companies, without having to build their own facilities.
- The increasing use of IP in telecommunications networks provides increased flexibility in combining and developing new products and services. Today, these services are largely provided on distinct technology platforms. In the future, when the shift to IP is complete, it will be possible not only to offer all these services on the same platform but also to develop new and more functional integrated voice, data and video services.

### Open Network Architectures

The shift toward IP and the parallel development of open standards for both local and wide area networks as well as for end-user devices are driving significant changes in the structure of telecommunications networks. These changes in turn are increasingly being reflected in the structure of the telecommunications industry and in the markets for its products and services.

With the advent of multiple access technologies and the use of IP for all forms of communication, clear lines of demarcation are emerging between the different functional layers that are found in modern communication networks. The "horizontal" separation between the different network layers or functions depicted in Figure 1-8 and described in the accompanying text box is creating a new network architecture that contrasts sharply with traditional "vertical" models in which different networks were needed to provide different kinds of services (e.g. telephone, data and broadcasting services) and in which the various functions performed by these different kinds of networks were much less distinct.

Figure 1-8. Network Layer Architecture

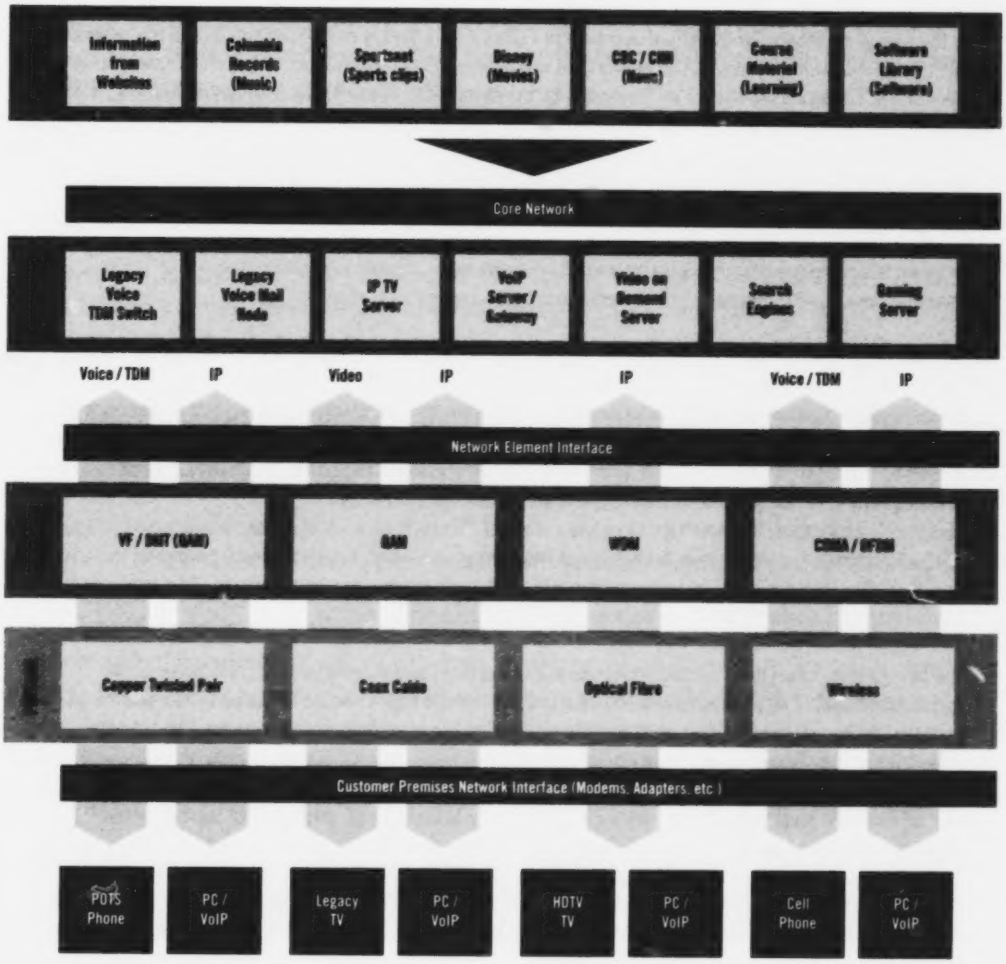
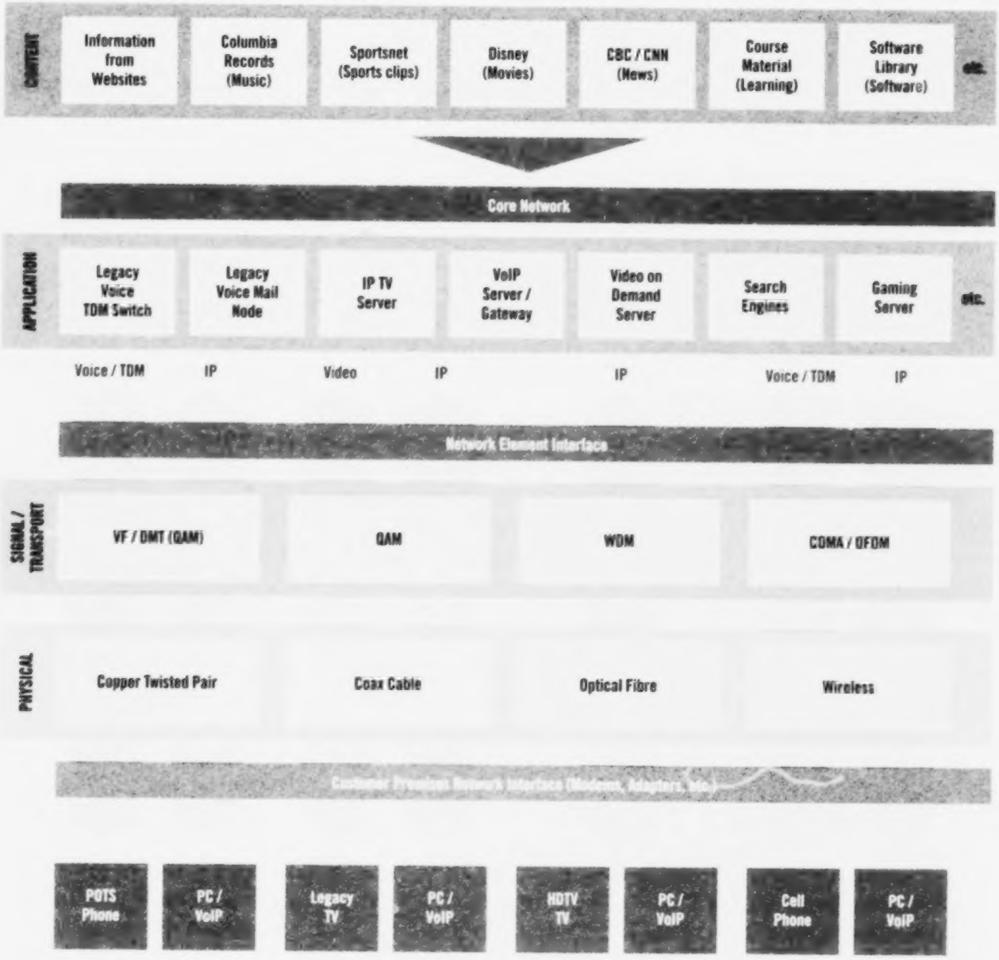

Information from Websites
Columbia Records (Music)
Sportsnet (Sports clips)
Disney (Movies)
CBC / CNN (News)
Course Material (Learning)
Software Library (Software)
Core Network
Legacy Voice TDM Switch
Legacy Voice Mail Node
IP TV Server
VoIP Server / Gateway
Video on Demand Server
Search Engines
Gaming Server
Voice / TDM
IP
Video
IP
IP
Voice / TDM
IP
Network Element Interface
VF / DMT (QAM)
QAM
WDM
CDMA / OFDM
Copper Twisted Pair
Coax Cable
Optical Fibre
Wireless
Customer Premises Network Interface (Modems, Adapters, etc.)
POTS Phone
PC / VoIP
Legacy TV
PC / VoIP
HDTV TV
PC / VoIP
Cell Phone
PC / VoIP

Figure 1-8. Network Layer Architecture


CONTENT
Information from Websites
Columbia Records (Music)
Sportsnet (Sports clips)
Disney (Movies)
CBC / CNN (News)
Course Material (Learning)
Software Library (Software)
etc.
Core Network
APPLICATION
Legacy Voice TDM Switch
Legacy Voice Mail Node
IP TV Server
VoIP Server / Gateway
Video on Demand Server
Search Engines
Gaming Server
etc.
Voice / TDM
IP
Video
IP
IP
Voice / TDM
IP
Network Element Interface
SIGNAL / TRANSPORT
VF / DMT (QAM)
QAM
WDM
CDMA / OFDM
PHYSICAL
Copper Twisted Pair
Coax Cable
Optical Fibre
Wireless
Customer Premises Network Interface (Modems, Adapters, etc.)
POTS Phone
PC / VoIP
Legacy TV
PC / VoIP
HDTV TV
PC / VoIP
Cell Phone
PC / VoIP

### A Four-layer Model of Network Architecture

In the emerging network architecture depicted in Figure 1-8, a variety of devices connect to the network at the customer's premises' end of the network. In the interests of simplification, only some key examples of devices and functions are shown. As illustrated by the bottom row of the figure, a separate "box" is usually required to connect an end device to the network. Well-known examples are a DSL modem, a cable modem, a TV set-top box or a VoIP modem. Only legacy voice telephones and cell phones connect directly with the network.

A key element of the network is the ***physical layer***, which represents the basic medium of connectivity between the customer premises and the nearest network node. Historically, different types of service providers have used different physical media to provide their service offerings.

To make the physical medium carry traffic, a variety of signal transmission/modulation schemes are used. This constitutes the ***signal or transport layer*** of the network. The signalling scheme used is appropriate to the physical medium under it. For example, a discrete multi-tone (DMT) signalling scheme is used on copper wires to deliver data speeds required for a DSL service. Wavelength division multiplexing (WDM) is used to "light up" a dark fibre, and orthogonal frequency division multiplexing (OFDM) is used in more contemporary wireless systems to boost speeds and spectrum efficiency.

Most of the time, the signal layer is invisible to the average end-user. For all practical purposes, the end-user/customer sees the physical layer and the transport layer as one seamless package. This may, however, not necessarily be true for the more sophisticated enterprise customers.

The key point of divergence between traditional architectures and new network architectures is the ***applications layer***. The applications contained in this layer are highly visible to the end-user, and range from the ability to dial a number and have the call connected, to being able to access a Video-on-Demand server and spontaneously view a movie of choice.

The applications layer uses the core network to reach the actual source material that resides in the ***content layer***. Driven by a completely different industry segment — the content or media industry — this layer provides the actual telecommunications payload such as music for downloads, TV coverage of sports events or navigational information. In a typical transaction, a user may use a wireless device to reach an Internet portal (residing in the applications layer) and request navigational information from a source like MapQuest® (residing in the content layer).

As illustrated in the preceding figure and box, a key development associated with the shift to IP-based networks is the increasing separation of applications and content from network infrastructure. In the past, many applications were controlled by network operators as part of an integrated, end-to-end service offering. In the future, consumers increasingly will have control over the specific applications and services to which they subscribe and use. This trend toward the decoupling of applications from underlying networks is illustrated by the introduction of VoIP services that can make use of any broadband network, whether it is provided by a cable, telephone or fixed wireless provider. Traditional voice services of the kind still provided by incumbent telephone companies include network access and transport services as well as the voice application itself. In contrast, VoIP services can be provided on a stand-alone application basis by companies other than those that provide the underlying transport services, in this case, high-speed Internet access. As a result of the shift to IP and the decoupling of applications from underlying infrastructure, new service providers can enter the voice services market without first having to build an access network. For their part, customers can choose a VoIP service provider other than their broadband access provider.

The Panel believes the opening up of network architectures will affect the telecommunications industry in several ways.

- By separating the provision of services and applications from the provision of infrastructure and access and by putting more intelligence at the edges of the telecommunication networks, the open network architectures associated with IP will give consumers much greater opportunities to define their product and service needs, to choose a mix of suppliers, and even to create their own applications. In the future, the telecommunications marketplace will increasingly shift from one where applications are "pushed" to consumers by network providers, to one where there are greater opportunities for consumers to "pull" the applications, services and content of their choice.
- As consumers are able to "mix and match" from an expanding range of suppliers, facilities-based service providers will have less control over the value chain on which their business models traditionally relied. In particular, the emergence of VoIP highlights the fact that local and long distance voice services are unlikely to remain a core business segment for facilities-based telecommunications service providers. As the provision of voice services becomes decoupled from the provision of network access and is eventually offered to consumers at very little or no cost, traditional telecommunications service providers will have to develop new business models that replace lost voice revenue with new sources of income, and attract the investments that will be required to deploy IP-based, broadband, NGNs. In this respect, the Panel notes that there is an ongoing international debate involving, on the one hand, the benefits and costs associated with policies designed to facilitate the opening up of network architectures so that they are available to all application developers and content providers on a non-discriminatory basis and, on the other hand, the benefits and costs associated with policies designed to encourage the investments that will be required to build NGNs. This issue is discussed further in Chapter 6, which deals with social regulation.
- The servers that provide applications at the edge of IP-based networks can be located anywhere in the world. The distance insensitivity of these networks will expand competition on a global basis and bring new competitors into the telecommunications industry. For example, global peer-to-peer Internet telephony providers, such as Estonia-based Skype Technologies, now are offering voice over IP-based PC-to-PC and PC-to-phone communications in local markets all over the world, competing with traditional telecommunications service providers.

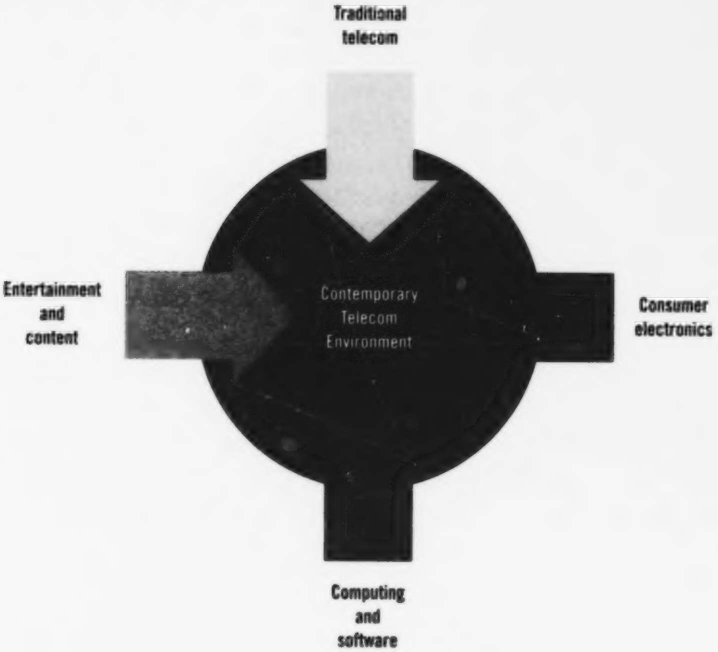
- The opening of networks to independent application and service providers has resulted in new levels of collaboration and competition between product and service providers in the telecommunications, computer and consumer electronics industries. This has resulted in major benefits for consumers, as innovations in each one of these areas have spurred innovations in the others. However, these benefits have come at a price. The opening up of telecommunications networks that were centrally controlled by network operators has created privacy and security concerns that must continue to be managed by network operators and service providers, and be addressed by policy makers.

### Convergence of Industries

Along with the shift to IP and open standards, the opening up of network architectures is creating a new, converged telecommunications marketplace where previously distinct industries now are both competing and collaborating not only to create new applications, products and services, but also to distribute existing applications, products and services in new ways.

One way to understand the collaborative dimension of the new telecommunications marketplace is to examine the role played by four formerly independent communications industry segments — the telecom infrastructure industry, the computing industry, the consumer electronics industry and the entertainment industry — in the development of new products and services such as music downloading and multimedia messaging services (MMS) (Figure 1-9).

**Figure 1-9. Four-way Convergence**



The consumer electronics industry has revolutionized the music industry with the introduction of compact, portable and inexpensive portable music players such as MP3 players and Apple's iPod. The same technology, when incorporated into cell phones, allows MP3 music files to be downloaded over wireless networks. The servers that host these applications are the products of the computing industry. The actual music tracks are created by the entertainment industry. A similar four-way convergence underlies MMS, an application that was triggered by the development of low-cost digital camera technology by the consumer electronics industry. With the evolution from short messaging service (SMS) to MMS, short messaging over wireless is no longer confined to text-only messages. Designed to work with mobile packet data services such as those offered by 2.5 G and 3G networks, MMS enables consumers to send and receive multimedia messages containing graphics, photos and video as well as music and other audio clips. Watching digital television on a mobile phone, personal digital assistant (PDA) or even perhaps a wireless-enabled watch is another example of this four-way convergence.

The Panel believes that convergence between formerly distinct industry segments is reshaping the telecommunications industry in a number of ways.

- Convergence is changing the way consumers see the telecommunications industry and is altering their expectations regarding telecommunications services. When downloading an MP3 song or a video clip to a computer, or consulting email on a BlackBerry®, a consumer is dealing with a number of different service providers from different industry segments rather than with a single service provider. To serve the customer, each of these different service providers must master the new skills that are required to partner and collaborate with other companies from very different industries in order to solve complex problems related to such matters as intellectual property rights. The increasing need for different industries to collaborate in turn creates opportunities to build new businesses that specialize in resolving these kinds of issues for other companies. Apple's iPod device and iTunes service are good examples of the complex arrangements that are needed to combine Internet infrastructure, consumer electronics, software solutions and financial arrangements with the music, film and television entertainment industry in a single product offering legal downloads on a per-item basis.
- These evolving arrangements are creating new and more efficient channels for distributing digital content to consumers, who increasingly are switching from traditional broadcasters to new media producers whose products and services are better suited to personal interests and the realities of modern life. The average consumer now spends more time, for both personal and professional reasons, in front of a computer than a television set. MP3-encoded music, which can be played through a variety of electronic media, is displacing traditional radio broadcasting and previous-generation audio technologies. Similar changes are likely to occur in the consumption of video content, which is already available on mobile devices as well as downloadable on personal computers and will soon be easily accessible on demand through televisions that are linked to the Internet via entertainment servers. Media are becoming increasingly personalized: consumers not only are increasing control over what content they consume and, through time-shifting, when they consume it, but also, as the recent explosion in blogging and photo-sharing attests, they are becoming increasingly important producers of content as well.

- As part of this general trend to convergence between formerly distinct industry sectors, there is an increasing overlap between the services offered by the telecommunications industry and the services traditionally provided by the broadcasting industry. While the Panel certainly acknowledges the importance of supporting the viability of Canadian cultural industries and the availability of Canadian content, this overlap raises important and difficult questions about whether old rules can deal with new realities, and whether it makes sense to have different laws and different federal government policy and regulatory institutions dealing with converging communications industries that provide increasingly similar multimedia services, applications and content. This issue is briefly discussed in the report's Afterword.

## Transforming Telecommunications Policy

To help the Canadian telecommunications industry regain its position as a world leader that delivers economic and social benefits to all Canadians, the Panel believes the federal government must transform its policy frameworks in each of the areas we were asked to review — telecommunications regulation, ICT policy and broadband connectivity. The Panel also believes it is essential to see these three areas as parts of a unified information and communications policy field, rather than as three separate challenges. In the past, the telecommunications industry was largely distinct from the broadcasting, information technology and consumer electronics industries. Today, these industries are converging. The pace of innovation is accelerating. Competition and collaboration are increasing. Industry and market structures are changing. A new electronic communications sector is being created.

The products and services of this new sector are fuelling productivity, economic growth and competition. They are changing the way Canadians communicate, create, learn, work, live and are entertained. They present the hope of better government, improved public services and a more inclusive society. They have the potential to strengthen communities and to help bridge the divides that exclude some Canadians from full participation in economic and social life.

Effective frameworks for telecommunications regulation, ICT policy and broadband connectivity all have a part to play in achieving these benefits. In considering what should be done to transform policy in each of these areas, the Panel believes it is important to ensure consistency and strengthen the connections between these different policy areas in the new economic and social spaces being created in the electronic communications sector.

The following chapters contain the Panel's recommendations for how this should be done.

## 2

# Chapter 2
# Policy Objectives and Regulation

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A statement of Canadian telecommunications policy objectives was first included in legislation when the *Telecommunications Act* came into effect in 1993 (see excerpt). Prior to then, legislative policy direction for regulation was limited to several general policies embedded in legislation, principally those requiring rates to be "just and reasonable" and prohibiting "unjust discrimination."

**Excerpt from the *Telecommunications Act*, 1993**

**Canadian Telecommunications Policy**

7. It is hereby affirmed that telecommunications performs an essential role in the maintenance of Canada's identity and sovereignty and that the Canadian telecommunications policy has as its objectives

(a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;

(b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;

(c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;

(d) to promote the ownership and control of Canadian carriers by Canadians;

(e) to promote the use of Canadian transmission facilities for telecommunications within Canada and between Canada and points outside Canada;

(f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;

(g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;

(h) to respond to the economic and social requirements of users of telecommunications services; and

(i) to contribute to the protection of the privacy of persons.

The Panel's consultations have made it clear that there is a need to update and clarify the policy objectives set out in the Act. The 1993 Act was largely based on a regulatory framework that had evolved from early 20th century railway, telegraph, telephone and public utilities law. While the policy objectives set out in the Act are more modern than other provisions in the Act, some objectives are clearly dated and are linked to policy issues of the early 1990s. As described in the previous chapter, the telecommunications environment has changed significantly since that time.

Some of the core objectives of Canadian telecommunications policy have remained constant. In particular, the Panel believes telecommunications policy should continue to focus on the core objective of promoting affordable access to telecommunications services in all regions of Canada. However, a forward-looking policy should go well beyond that. It should:

- ensure that telecommunications markets can operate effectively to provide Canadians with a wide range of advanced broadband, Internet and other electronic services, including e-commerce, health, education and government services
- reflect the fact that most telecommunications services are now provided in Canada in vigorously competitive telecommunications markets, and anticipate completion of the transition away from the monopolistic telecommunications environment of the past
- provide a framework that promotes a telecommunications infrastructure that will advance not only Canada's social welfare, but also its economic prosperity.

The Panel's consultation process highlighted a number of problems with the policy objectives set out in s. 7 of the *Telecommunications Act*. Some are substantive problems that call for changes to reflect the current telecommunications environment and to include important objectives for the future that are not clearly set out in s. 7. Other problems relate to conflict and lack of clarity in the existing objectives.

The Panel believes the objectives require updating and clarification:

- to better focus regulatory and other government measures by more clearly articulating Canada's national telecommunications policy objectives
- to place greater emphasis on market forces as a means to achieve policy objectives
- to ensure that, in an increasingly market-driven environment, important social goals are properly protected and advanced
- to recognize that regulation and other forms of government intervention have costs and can, in some circumstances, undermine achievement of policy objectives
- to provide guidance, which is not currently provided in the Act, on the extent to which regulation and other forms of government intervention should be applied in competitive markets.

## The Need for Change

The legislative policy objectives should provide guidance for government involvement in the Canadian telecommunications sector. At a more specific level, they should provide guidance to the Canadian Radio-television and Telecommunications Commission (CRTC), the government and the Minister responsible in the exercise of their powers under the *Telecommunications Act* and other telecommunications legislation.

The Panel believes the legislative policy objectives should be clear and explicit, and should provide practical guidance to regulators and government officials in the discharge of the responsibilities delegated to them by Parliament. The current objectives do not meet these requirements. Some are overlapping and inconsistent, while others are vaguely worded.

As an example of these problems, it is difficult to reconcile the objective in para. 7(a) of the Act "to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions" and that in para. 7(f) "to foster increased reliance on market forces. . . ." The first implies that the government must decide how to develop the telecommunications system in an "orderly" manner. It is reminiscent of legislation for a government-planned program. It conflicts with the objective of relying on market forces. Moreover, s. 7 is vague in that it provides no guidance on how much reliance should be placed on market forces as opposed to regulation, stating only that such reliance should be "increased."

The practical implications of applying the current s. 7 objectives are often unclear. As a result, they are used by parties in CRTC proceedings to justify arguments in support of a very wide range of different and often conflicting regulatory actions.

Section 7 fails to distinguish between policy objectives, such as promoting affordability and efficiency of telecommunications markets, and the means for achieving those objectives, such as regulation or reliance on market forces. This creates a risk of confusion between the "means and ends" of telecommunications policy. The Panel believes Canada's legislative framework should separate the objectives of telecommunications policy from the means for achieving them. This is particularly important in today's competitive markets, where reliance on market forces is often regarded as the best means of achieving some key objectives for Canada's telecommunications sector, such as affordability and access to telecommunications services.

The current policy objectives date from a time when most telecommunications services were heavily regulated. In 1993, it was not clear that competition would emerge to the extent it has. At that time, few policy makers had foreseen the disruptive effects that would result from technological developments such as the Internet and other Internet Protocol (IP) platforms, broadband and wireless networks, nor the potential for services enabled by such developments, such as VoIP (voice over IP) and IP television, to undermine the dominant positions of telephone and cable television companies in their respective core markets.

Telecommunications markets have changed radically since 1993. In general, today's competitive markets are functioning well to provide Canadians with a wide and growing range of advanced and innovative services at reasonable prices. At the same time, growing competition and convergence are making it increasingly difficult for regulators and governments to intervene in telecommunications markets and to direct industry behaviour in the way it was possible to do in the era of monopoly telephone and cable television companies. Today, there is a greater risk that detailed regulatory intervention can impose significant costs and unintended consequences on consumers and on the economy; for example, by promoting services or technologies that ultimately will fail or by retarding development of more efficient ones. Today, there are substantial risks that detailed and intrusive regulation may compromise realization of the full economic and social potential of Canadian telecommunications markets, rather than contribute to achievement of this goal.

Therefore, the Panel believes the legislative framework should specify the circumstances in which regulation is still warranted and that it should provide clear direction on the use of regulatory powers so regulation does not unnecessarily impede the development of market forces.

As discussed in Chapter 3, Economic Regulation, the Panel believes Canada's telecommunications markets have evolved to a point that justifies replacement of the current legislative presumption favouring regulation with one favouring reliance on market forces. While the CRTC has been moving in this direction, the Panel believes the legislative policy framework should make it clear that, going forward, regulation should continue or be imposed only where there is a clearly demonstrated need for it. At the same time, the Panel recognizes that market forces cannot be relied upon to achieve all policy objectives. This is particularly true in the case of social objectives.

The Panel believes the legislative framework should identify the key social objectives of Canada's telecommunications policy more clearly than is currently the case. The very general language of some of the current objectives provides little operational guidance on how objectives should be achieved. For example, in practice it is difficult to apply the current paragraph 7(a) objective that the telecommunications system should serve "to safeguard, enrich and strengthen the social and economic fabric of Canada." Instead of being stated in such general terms, the Panel believes key social objectives should be specifically identified.

In many cases, social objectives may be achieved by market forces alone. In other cases, they may require continued regulation or other forms of government intervention. Clarification of the social objectives of telecommunications policy will better enable regulatory measures to be specifically targeted to these objectives. Targeted and cost-effective implementation of social objectives will also contribute to achievement of the economic objectives for Canada's telecommunications policy. The specific types of regulation used to achieve social and economic objectives, and the relationship between them, are discussed in Chapters 3, Economic Regulation, and 6, Social Regulation.

## New Policy Objectives

The Panel recommends replacing the current policy objectives section of the *Telecommunications Act* with new provisions that not only clarify the policy objectives for Canada's telecommunications sector but also set out guidelines for government or regulatory action to achieve them.

This subsection discusses the objectives. The next subsection deals with the proposed guidelines. The rationale for these objectives and the regulatory framework required to implement them are discussed in detail in succeeding chapters. In particular, Chapter 3 explains the rationale for proposed changes to economic regulation, while Chapter 5 discusses technical regulation, Chapter 6 considers social regulation, Chapter 7 examines Canada's information and communications technology policy, and Chapter 8 considers measures to expand access to broadband telecommunications infrastructure.

An overall thrust of the Panel's recommendations is that competitive market forces now can achieve many of Canada's telecommunications policy objectives without regulatory or government intervention. This will increasingly be the case in the future. However, the recommended objectives reflect the Panel's view that certain key social objectives continue to be of critical importance in Canadian telecommunications policy. The Panel recommends several concrete new initiatives to achieve important social objectives that market forces are unlikely to achieve on their own, even as competition increases.

In Chapter 6, the Panel recommends three initiatives:

- imposition of an explicit legal obligation on incumbent local exchange carriers (i.e. the telephone companies that have historically served an area) to continue to provide essential telecommunications services
- a new telecommunications consumer agency to provide an improved means for consumers to resolve disputes with telecommunications service providers
- a clear consumer right to access Internet content and applications of their choice, regardless of their telecommunications access provider.

In Chapter 8, the Panel recommends a new government program, the U-CAN program, to accelerate the expansion of broadband telecommunications infrastructure in non-economic areas of the country.

The Panel believes certain key social objectives will remain a priority for Canadians as telecommunications becomes an increasingly important enabler of economic and social activities, and an increasingly critical infrastructure for the delivery of government and public services such as health and education.

Accordingly, the Panel's first proposed policy objective is "to provide affordable access[1] to advanced telecommunications services in all regions of Canada, including rural and remote areas." As in the past, "affordable access" should continue to be a central objective of Canadian telecommunications policy, since affordable access to telecommunications services is required for full participation in Canadian society and economic activity. The affordable access objective also recognizes that in some areas, particularly rural and remote ones, the costs of providing telecommunications service are so high that market forces alone are unlikely to be able to provide affordable access without government intervention.

In Chapter 8, the Panel concludes that broadband telecommunications access will be an essential enabler of the economic and social welfare of individual Canadians, regardless of where they live, and that the market will fail to achieve the goal of ubiquitous broadband access by 2010, particularly in rural and remote areas. This is the basis for the Panel's recommendation of the government-funded U-CAN program.

The Panel's second proposed policy objective is to enhance the efficiency of Canadian telecommunications markets and the productivity of the Canadian economy. This important economic objective reflects the vital role that telecommunications and information and communications technologies play in contributing to economic prosperity and to improving the overall standard of living of Canadians.

This objective recognizes that government or regulatory measures may be required to improve the economic efficiency of markets, for example, by dealing with the abuse of monopoly or "significant market power" or by ensuring efficient interconnection of telecommunications networks. In other cases, where the costs of regulation may outweigh the benefits, this economic objective should constrain excessive regulation.

As discussed in detail in Chapter 3, the Panel considers it critical for government and regulatory intervention not to undermine the second proposed objective. Therefore, the Panel recommends:

- significant reductions in economic regulation
- guidelines to limit regulation to those situations in which market forces alone cannot be relied upon.

The third recommended objective articulates four key social goals, three of which are not explicitly identified in the current *Telecommunications Act*.

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[1] The Panel notes that the term "access" is used in different ways in telecommunications policy and regulation. The legislative provisions to implement this "affordable access" objective should make it clear that they are aimed at ensuring that "end-users" have affordable access to advanced telecommunications services. The term "end-users" is meant to refer to consumers, businesses, government, non-profit and other users of telecommunications services. It is not meant to refer to other telecommunications service providers that resell services, with or without adding value. Policy issues relating to "wholesale access" to telecommunications services (i.e. access between telecommunications service providers) are dealt with in Chapter 3.

In some cases, these goals cover policy areas in which existing regulatory practices are reasonably well developed. For example, the CRTC has taken a number of measures over the years to promote access to telecommunications services by persons with physical disabilities. However, the proposed objective will, for the first time, provide legislative direction to promote such access. The proposed third objective will also give explicit legislative recognition of the importance of social objectives related to enhancing public safety and security, protection of privacy and limiting public nuisance through the telecommunications system.

On the basis of the foregoing considerations, the Panel recommends restating the telecommunications policy objectives set out in the *Telecommunications Act*.

**Recommendation 2-1**

**The Canadian telecommunications policy objectives as currently set out in the *Telecommunications Act* should be clarified to:**

**(a) set out the objectives of Canadian telecommunications policy, and**

**(b) provide guidelines for regulatory and government action to achieve these objectives.**

**Recommendation 2-2**

**Section 7 of the *Telecommunications Act* should be removed and replaced with the following:**

***"Canadian Telecommunications Policy and Government and Regulatory Guidelines"***

**"7. It is hereby affirmed that telecommunications performs an essential role in enabling the economic and social welfare of Canada and that Canadian telecommunications policy is based on the following objectives:**

**(a) to promote affordable access to advanced telecommunications services in all regions of Canada, including urban, rural and remote areas;**

**(b) to enhance the efficiency of Canadian telecommunications markets and the productivity of the Canadian economy; and**

**(c) to enhance the social well-being of Canadians and the inclusiveness of Canadian society by:**

- **(i) facilitating access to telecommunications by persons with disabilities;**
- **(ii) maintaining public safety and security;**
- **(iii) contributing to the protection of personal privacy; and**
- **(iv) limiting public nuisance through telecommunications."**

## Guidelines for Government and Regulatory Action

As discussed elsewhere in this report, particularly Chapter 1, Canada has one of the world's most competitive telecommunications markets. The CRTC has recognized this and is moving toward increased forbearance from regulation. However, the current Canadian regulatory framework still includes very detailed and extensive forms of economic regulation, particularly in respect of local retail services of the incumbent local exchange carriers. The current *Telecommunications Act* lacks clear direction with respect to the balance between economic regulation and reliance on market forces. The current objectives require only that "increased reliance" on market forces should be "fostered."

Since 1970, the regulatory framework set out in the *Telecommunications Act* and its predecessor legislation, the *Railway Act*, has contained a clear presumption in favour of regulation of all telecommunications services provided by Canadian telecommunications carriers. This framework requires prior CRTC regulatory approval of all of the rates[2] and tariffs[3] of all such carriers, including all their services, unless a class of carriers is exempted from regulation,[4] or unless the Commission forbears from regulating the service.[5] However, the current Act also provides the Commission with a very broad discretion to decide to forbear if it finds that a type of telecommunications service will be subject to "sufficient" competition to protect the interests of users.

The Act provides no guidance on the tests to be used to determine when such competition is "sufficient" and no direction is given regarding the relative weight to be given to regulation and market forces in markets that remain subject to some regulation. This raises the potential for overly slow or cautious forbearance from regulation in competitive markets, and for overregulation in markets where some regulation may still be required but where market forces may be sufficient to supplement some or all of it.

There will continue to be a significant role for some forms of telecommunications regulation for the foreseeable future. There are areas of the country, particularly remote areas, in which competitive market forces may never be sufficient to entirely replace economic regulation. In addition, the pursuit of social objectives is likely to require continued social regulation of some types. Government and CRTC involvement in technical regulation — for example, through oversight of interconnection arrangements, spectrum management, and access to support structures and rights-of-way — will likely also be required on an ongoing basis.

Since telecommunications markets will continue to be governed by a combination of market forces and regulation, the Panel believes Canada's telecommunications legislation should provide a clearer direction on when regulation is required as well as on the nature and extent of regulatory measures. In arriving at its recommendations to guide future regulatory and government intervention, the Panel considered the following factors.

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[2] Subsection 25(1) of the *Telecommunications Act* prohibits all Canadian carriers from providing a telecommunications service except in accordance with a tariff filed with and approved by the CRTC. The tariff must specify the rate, or the maximum or minimum rate, or both, to be charged for the service.

[3] Section 24 requires telecommunications services to be provided subject to any conditions imposed by the CRTC or included in tariffs approved by the Commission. The tariffs of carriers generally include a comprehensive description of the conditions under which the service is offered.

[4] Pursuant to s. 9 of the Act.

[5] Pursuant to s. 34 of the Act.

First, there should be a general predisposition in favour of reliance on market forces. This approach is warranted by:

- the very substantial level of competition that has emerged in Canadian telecommunications markets, including the establishment of at least two competitive local access network infrastructures in the large majority of Canadian markets
- technology and global market trends, which are providing an increasing range of competitive alternatives to existing regulated telecommunications services
- the extent to which market forces have successfully provided what Canadians need; that is, widespread access to an increasing range of reliable and advanced services at reasonable prices and conditions, including one of the highest levels of advanced broadband access services in the world
- the proposition that government regulatory intervention is costly and potentially disruptive, and that it should be used selectively to solve clearly identified problems or to achieve important social or economic goals
- the related proposition that reliance on market forces is preferable to regulation in situations where both options can achieve the same policy goals.

Second, the Panel notes that effective and informed regulation of telecommunications markets is a complex and problematic endeavour. Detailed economic regulation of telephone companies worked reasonably well in the simpler and more stable monopoly environment of the past. In that era, a diligent and skilled regulator could:

- try to gather all necessary information
- try to accurately assess current and expected market dynamics
- rely on the continued validity of both that information and those assessments
- take the time necessary to come to well-considered regulatory decisions
- be reasonably confident that its decisions would have the intended impact.

In contrast, today's telecommunications markets are very competitive, dynamic and complex. This undermines the effectiveness of economic regulation in many areas and introduces new costs. In the new environment, these costs include not only the traditional costs of the regulatory process and compliance, but also the negative impact of regulation on the development of efficient markets, the disruptive implications of acting on uncertain information, the potential for unintended consequences, the distortion of market outcomes and other similar elements. Consequently, even where market forces operate imperfectly, one can no longer assume that regulation will automatically produce a better result. In fact, in some circumstances, regulation can delay the introduction of advanced new services. It can also mandate prices higher than those that would occur in an unregulated market.

The Canadian telecommunications sector has reached a tipping point. Today, unlike in the past, one can assume that competitive market forces will generally provide a more effective and less costly means than economic regulation of achieving Canada's telecommunications policy objectives. It is time for the regulatory framework to provide clear guidance regarding the primacy of market forces and to clarify the more limited circumstances in which regulation or other forms of government intervention should be applied.

In this context, the Panel agrees with the following principles set out in *Smart Regulation: A Regulatory Strategy for Canada*[6]:

- regulation, where required, should be clearly directed at achieving the intended policy objectives
- regulators should strive for the least costly and intrusive means to achieve policy objectives, avoiding overlap, duplication and inconsistency, minimizing the potential risks of unintended consequences and providing for enforcement that is commensurate with the risks and problems involved.

Competitive market forces have evolved to the extent that they can replace regulation as the primary means for achieving Canada's telecommunications policy objectives. Accordingly, the *Telecommunications Act* should include guidelines to determine not only when regulatory or other government intervention is required but also the nature and extent of such intervention.

**Recommendation 2-3**

**The *Telecommunications Act* should be amended by adding the following immediately after proposed section 7:**

**"7.1 The following guidelines shall be applied in implementing the telecommunications policy objectives:**

**(a) market forces shall be relied upon to the maximum extent feasible as the means of achieving the telecommunications policy objectives;**

**(b) regulatory and other government measures shall be applied only where**

**(i) market forces are unlikely to achieve a telecommunications policy objective within a reasonable time frame, and**

**(ii) the costs of such measures do not outweigh the benefits; and**

**(c) regulatory and other government measures shall be efficient and proportionate to their purpose and shall interfere with the operation of competitive market forces to the minimum extent necessary to meet the objectives."**

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[6] External Advisory Committee on *Smart Regulation, Smart Regulation: A Regulatory Strategy for Canada* (Ottawa: the Committee, September 20, 2004). Available online at: **http://www.pco-bcp.gc.ca/smartreg-regint/en/08/rpt_fnl.pdf**

## Compliance with Guidelines

The proposed guidelines for government and regulatory intervention are designed to ensure that achievement of telecommunications policy objectives is clearly advanced by regulation and other forms of government intervention, and that such intervention does not inadvertently interfere with the efficient operation of telecommunications markets. In the Panel's view, the policy objectives recommended by the Panel can best be achieved through rigorous adherence to these guidelines. Hence, the Panel believes the CRTC, as well as other government agencies and departments involved in implementing telecommunications policy and regulation, should be subject to a statutory requirement to demonstrate compliance with the guidelines on an ongoing basis.[7]

The purpose of this requirement is to focus the attention of regulators and other government officials, in each case, on whether a regulatory or government action is in fact required and, if so, whether there are other less intrusive or less costly ways to achieve a policy objective within a reasonable time frame. The Panel believes imposing this obligation on the regulator will help overcome the long-standing legislated presumption favouring regulation. This should ensure a more consistent and more rapid transition to reliance on market forces.

**Recommendation 2-4**

**The *Telecommunications Act* should be amended by adding the following immediately after proposed section 7.1:**

**"7.2 All policy documents, decisions, orders or other means of introducing or amending significant government or regulatory measures shall:**

**(a) specify the telecommunications policy objective that is advanced by the policy or measure;**

**(b) demonstrate compliance with the statutory guidelines for achievement of Canada's telecommunications policy objectives."**

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[7] This requirement is analogous to the requirement that regulatory impact analysis statements (RIAs) accompany new federal regulations. See the section on Regulatory Impact Analysis Statements in the Privy Council Office's *Regulatory Process Guide*, modified July 1, 2004, available online at: **http://www.pco-bcp.gc.ca/raoics-srdc/default.asp?Language=E&Page=Publications&doc=regguide/regguide_e.htm**. See also Privy Council Office, *Government of Canada Regulatory Policy*, approved in November 1999, available online at: **http://www.pco-bcp.gc.ca/raoics-srdc/default.asp?Language=E&Page=Publications&Sub=GovernmentofCanadaRegula**.The Panel does not believe the full requirements of the Regulatory Process Guide and the other process requirements related to the development of formal regulations should be extended to the CRTC and other departments and agencies involved in implementing telecommunications policy and regulation, since this may increase regulatory lag, and frustrate the goal of expediting the telecommunications regulatory process. See Chapter 9 for a fuller discussion of telecommunications regulatory procedures.

## Consistent Application of Policy

Today, a number of government departments and agencies are involved in implementing telecommunications policies and regulations. As previously indicated, the Panel believes Canada's telecommunications policy objectives should be implemented in a coherent and consistent manner by all such departments and agencies. These policy objectives should therefore apply not only to the CRTC in the performance of its duties under the *Telecommunications Act*, but also to the Minister of Industry in the implementation of telecommunications policies and programs.

Currently, there is no requirement for the Minister of Industry to exercise powers under the *Radiocommunication Act* or the *Department of Industry Act* in a manner that is consistent with Canada's telecommunications policy objectives.[8] This report recommends a realignment and a clearer separation of the current regulatory and policy-making functions of the Minister (see Chapter 9, Policy-making and Regulatory Institutions). However, the Minister of Industry as well as other government departments and agencies may continue to develop and implement telecommunications policies, programs and regulatory measures that intervene in the operation of telecommunications markets, such as the U-CAN program recommended in this report.[9]

**Recommendation 2-5**

**Amendments should be made to the *Radiocommunication Act*, the *Department of Industry Act* and other relevant federal legislation to ensure that all government departments and agencies that implement telecommunications policies, programs or regulatory measures act in a manner that promotes the achievement of Canadian telecommunications policy objectives and complies with the implementation guidelines as set out in the *Telecommunications Act*.**

## Regulation of Telecommunications Service Providers

Different kinds of service providers are entering the increasingly competitive Canadian telecommunications markets. One example of this growing diversity is the new entrants that resell telecommunications services obtained from other telecommunications carriers to provide the public with new VoIP telephone services. The CRTC's authority to regulate resellers and other telecommunications service providers (TSPs) under the *Telecommunications Act* is currently very limited. The CRTC's jurisdiction is largely confined to regulating "Canadian carriers" and the definition of that term excludes TSPs that do not own or operate their own transmission facilities.[10]

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[8] The *Radiocommunication Act* provides that the Minister "may have regard to" the telecommunications policy objectives in exercising his or her powers under s. 5 of that Act.

[9] Including the broadband access programs run by the Minister of Industry, such as BRAND and NSI.

[10] Telecom Public Notice CRTC 93-62, *Exemption of Resellers from Regulation*.

The government and the CRTC have recognized that the achievement of certain important social and technical objectives of regulation requires the application of some degree of regulation over the activities of TSPs that technically do not fall within the definition of "Canadian carriers." Subsequent to the passage of the *Telecommunications Act* in 1993, Parliament enacted certain amendments to the legislation that expanded the CRTC's authority over TSPs in order to include them within the scope of the international telecommunications licensing regime contained in s. 16.1. Section 46.5 was also enacted to enable the CRTC to include TSPs as contributors to the CRTC-established fund to support provision of affordable basic telephone service in high-cost areas.

The Act currently does not authorize the CRTC to impose other forms of regulation on TSPs, including technical or social regulation that aims to increase public safety or to ensure compliance with interconnection or technical rules. In the absence of other express powers to directly regulate TSPs, the CRTC has taken steps to establish an "indirect" form of regulation over them through the imposition of certain obligations in the tariffs of Canadian carriers that provide TSPs with underlying services and facilities. These obligations are found in provisions of the local exchange carriers' tariffs governing resale activity and in access tariffs for various types of services.

Under this system of indirect regulation, the CRTC's ability to ensure compliance by TSPs with its rules and regulations is limited in large measure to ordering the termination of service to the TSP by the Canadian carrier that provides the underlying transmission service if the TSP fails to comply with the provisions governing its receipt of service. Because of the economic and public safety implications of disconnection for tens of thousands of customers who rely on TSPs for the provision of telecommunications services, including local, long distance and emergency services, this type of enforcement mechanism tends not to be used, leaving the CRTC with no practical means of enforcing its social and technical regulation when it comes to TSPs.

The development of broadband technology and the increasing ability of TSPs to effectively duplicate the services offered by carriers using IP-based technologies, rather than simply reselling the underlying carrier's services, suggests that this indirect form of regulation is not the most effective mechanism to ensure that TSPs comply with CRTC regulations under the *Telecommunications Act.*

This deficiency in the current legislative framework was highlighted by the CRTC in its submission to the Panel where it emphasized its recent experience in establishing a regulatory regime for VoIP services. As noted by the CRTC[11]:

> The recent public proceeding with respect to VoIP services has brought this issue into focus. VoIP services are now being sold that are functionally equivalent to local exchange service and are intended as a substitute for basic telephone service. In the past, resellers could resell the local exchange carriers' basic local service, which included all of these important features. Now, in a VoIP environment, they can provide their own service with or without these features. While the objectives in section 7 of the *Act* require the Commission to address these issues, the *Act* currently limits the Commission's ability to do so, except in an indirect manner.

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[11] Telecom Decision CRTC 2005-28, *Regulatory Framework for Voice Communications Using Internet Protocol.*

This gap between the regulatory objectives of ensuring access to 9-1-1 emergency telephone service and other important features of local services, and the CRTC's power to enforce compliance is likely to widen in the future with the expansion of consumers' abilities to access an increasing number of telecommunications services from non-facilities-based service providers using broadband access. New measures are required to enable the CRTC to carry out its mandate effectively.

In light of these considerations, it is the Panel's view that the CRTC requires authority to directly regulate the activities of TSPs, particularly with respect to social obligations and technical regulations of general application in the industry. The Panel believes the CRTC's authority should be expanded to empower it to apply the provisions in Part III of the *Telecommunications Act* to TSPs when it finds that the exercise of any such power is necessary to carry out the policy objectives in s. 7. The CRTC should also be granted authority to enforce any such requirements with the full range of its powers under the *Telecommunications Act*.

The Panel believes these powers should only be selectively applied to TSPs as the need arises and that a decision to regulate TSPs should be supported by reasons why such regulation is necessary in the furtherance of the statutory policy objectives. This selective regulatory approach is consistent with the guidelines for regulation that are proposed earlier in this chapter. These guidelines should ensure that TSPs remain unregulated to the greatest extent possible and that regulation is limited to instances where it is necessary to meet specific objectives of the *Telecommunications Act*.

Consistent with later recommendations in this report, the Panel also recommends that when the CRTC finds it necessary to regulate the conduct of TSPs, it should do so to the greatest extent possible through the imposition of generally applicable rules enforceable by orders of the CRTC, rather than through tariff regulation or orders that apply only to specific service providers.

**Recommendation 2-6**

**The Canadian Radio-television and Telecommunications Commission should be empowered to directly regulate all telecommunications service providers to the extent necessary to implement the Canadian telecommunications policy objectives.**

# 3

## Chapter 3
## Economic Regulation

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This report treats economic, technical and social regulation separately. There are no "bright lines" separating the three, and regulatory measures cannot always be neatly categorized according to this taxonomy. Nevertheless, the issues and the measures to address these issues differ sufficiently that it is useful to distinguish them for the purposes of this report.

The ultimate goal of economic regulation, as with other forms of government intervention in the economy, should be to improve Canadians' quality of life by facilitating economic activity and increasing living standards. This goal should apply to economic policy and regulation in the telecommunications sector.

Chapter 2, Policy Objectives and Regulation, describes the Panel's recommended core objectives for Canadian telecommunications policy and regulation. These core objectives are aimed at:

- promoting affordable access to advanced telecommunications services throughout Canada
- enhancing the efficiency of Canadian telecommunications markets and the productivity of the Canadian economy
- enhancing the social well-being of Canadians and inclusiveness of Canadian society.

These objectives are not radically different from the core objectives that Canadian regulators and policy makers have taken into account in the past, either explicitly or implicitly. However, the means proposed by the Panel to achieve these objectives differ from traditional regulatory approaches.

The telecommunications industry environment has changed dramatically over the past 25 years, and the pace of change is accelerating. Today, the industry has almost completed its transformation from a small group of regional monopolies operating as regulated "public utilities" and providing a limited set of basic telephone services. The industry now consists of a dynamically competitive group of companies operating in an open market environment. These companies now compete with many regional, national and global players to provide a wide range of telecommunications applications and content services using new technologies.

This transformation calls for a change in the means of achieving Canada's national telecommunications policy objectives. The changes that the Panel considers necessary can be summarized as follows:

- The move toward economic deregulation of the industry should be accelerated to promote development of a more dynamic, innovative and customer-responsive environment.
- It should no longer be possible or desirable for regulators to "micro-manage" the industry to achieve a planned industry structure or to pre-determine most types of economic arrangements among industry players.

- Much of the detailed economic regulatory framework developed in the past is no longer required, since competitive market forces now are at the stage where they provide the means of achieving the core objectives of telecommunications policy.
- The telecommunications regulatory framework should rely more on the principles of "smart regulation"[1] and competition policy that apply to other sectors of the economy.
- The social goals of telecommunications regulation should be more clearly defined and separated from economic regulation of service providers. They should be directly addressed through competitively neutral regulatory measures that should generally apply to the whole industry.

The balance of this chapter starts with an examination of the rationale for economic regulation. This is followed by a discussion of what retail services should be regulated and what form this regulation should take. Particular emphasis is given to two important issues: control of anti-competitive conduct and the regulation of retail tariffs.

The chapter then turns to the issue of mandated wholesale access by competitors to incumbents' facilities and networks, including the prices that should apply. The chapter concludes with a discussion on a related topic, namely, the rights and obligations of telecommunications service resellers.

Given the complexity of the telecommunications services sector and the need to adapt traditional competition law to its special circumstances, the Panel believes, during a transitional period of five years, there should be a body combining expertise in the economics of competition with a deep knowledge of the telecommunications industry.

For the reasons given in Chapter 4 below, the Panel believes a new Telecommunications Competition Tribunal (TCT) should be established. The TCT would be a type of "joint panel" of the CRTC and the Competition Bureau, relying on the expertise of both. It would generally have jurisdiction over issues that involve competition as it affects telecommunications services decisions on deregulation and on the control of anti-competitive conduct. The TCT should be subject to a "sunset" provision, the assumption being that after the transition period the TCT will no longer be needed.

This chapter focuses on the nature of economic regulation and which services are to be regulated. Chapter 4 provides a detailed discussion of the proposed structure of the TCT and its powers.

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[1] Many of the key principles of "smart regulation" have been studied and developed in Canada and elsewhere in recent years. Examples of key reports in this area include those by the Economic Council of Canada, *Reforming Regulation* (Ottawa: Supply and Services, 1981) and recently the External Advisory Committee on Smart Regulations, *Smart Regulation: A Regulatory Strategy for Canada* (Ottawa: September 2004). The Panel is of the view that the broad principles set out in the latter report are generally relevant to regulatory reform in the telecommunications sector.

## Factors Affecting the Scope of Economic Regulation

### The Growing Role of Competition

Over the past 25 years, competition has grown very rapidly in Canadian telecommunications markets. During that time, regulation has intensified, often in an attempt to promote competition in specific markets.[2] After the opening of the long distance and local markets to entry in the 1990s, complaints from new entrants of anti-competitive conduct by incumbent local exchange carriers (ILECs) — that is, the telephone companies — grew significantly. As well, technological advances and market opportunities widened the range of activities undertaken by ILECs. Reacting to this, the Canadian Radio-television and Telecommunications Commission (CRTC) has become increasingly engaged in the detailed supervision of their activities and conduct. However, as competition intensifies, economic regulation should make way for market forces to the maximum extent possible.

There are a number of reasons why competitive telecommunications markets can serve consumers and the general economy better than regulation or other government intervention. One key reason is that setting prices and conditions of service that benefit both service providers and customers requires large amounts of information, more than a single organization can easily gather, keep up-to-date and use. This is true whether the organization is government or private sector. In competitive markets, changes to prices and conditions of services are generally made by trial and error, taking into account what has worked in the market and what has not. Competitive market forces can process more information and do so more efficiently than any single service provider or regulator.

Another reason why competitive markets are superior to regulation and government intervention is that regulation imposes significant costs. These include the costs of the regulatory process itself, such as the costs of regulatory compliance by service providers and other participants, as well as costs in the form of unforeseen or unintended consequences.[3]

Competitive markets provide superior incentives to service providers. In a competitive market, service providers can prosper only to the extent that they meet the needs of customers. Provided that barriers to competitive entry have been removed, service providers must innovate and provide services and prices that meet their customers' needs, or customers will switch to competitive options.

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[2] For example, in the mid-1980s, the CRTC established a fixed price differential between prices charged by CNCP for private lines, and those charged by Bell Canada. See: *CNCP Telecommunications — Rates for the Provision of Interconnected Private Line Voice Services*, Telecom Decision CRTC 83-10, 26 July 1983. Ostensibly put in place to compensate for CNCP's lower value of service, in practice the differential served as a pricing umbrella for CNCP, stopping Bell from lowering its prices unless CNCP lowered its prices first, and so ensuring that CNCP could keep its prices at current levels.

[3] For example, preparing and filing economic studies in a level of detail and format specified by the regulator, to show that floor price constraints are met, will require additional time and resources.

In principle, regulation should supplement, not replace, market forces. The Panel considers that competition in Canadian telecommunications markets now has evolved to a point where regulation should be the exception rather than the rule. Such an approach would require a fundamental change in the current legislative framework, which provides that services will be regulated unless the regulator specifically forbears from regulation. The Panel also considers that the new regulatory framework should ensure that where regulation is required, its impact on market forces should be limited and the regulatory measures should be proportional to the problems they are intended to address.

Accordingly, the Panel believes the regulatory framework for Canada's telecommunications sector should rely on competition and market forces to the maximum degree feasible.

**Recommendation 3-1**

**The regulatory framework for Canada's telecommunications sector should rely on competition and market forces rather than on economic regulation, to the maximum extent feasible.**

The extent to which market forces can be relied upon varies by region. In regions with very low population density and fewer opportunities to realize economies of scale, telecommunications markets may well be what economists refer to as natural monopolies; that is, markets where costs are based on the scale of output and hence where a single firm can serve the market at a lower cost than several competitive firms. In such situations, regulation may need to continue for the foreseeable future.

Where economic regulation remains necessary, it is desirable, to the extent possible, to have it result in prices and performance levels similar to those that would occur in competitive markets. It will provide monopoly customers with some of the benefits that would have been obtained in a competitive market. It will also ease the transition for customers and service providers to deregulated markets by smoothing out price and performance changes.

### Fairness and Efficiency

Regulation of an industry or a sector of the economy usually has a number of objectives. A major objective should be to maximize efficiency and productivity, in cases in which freely functioning markets are not expected to produce that result. But efficiency is not the only objective. Regulation is also devoted to pursuing a variety of social objectives. An example of a recurrent social objective is fairness in terms of the regulatory treatment of different customers or service providers. In telecommunications regulation, examples of key social objectives include universal access, privacy and availability of emergency services.

Pursuit of some of the social objectives can conflict with the objectives of efficiency and productivity. An example is universal access to telephone service. Rates for basic local residential service were kept significantly below the cost of such service for many years to encourage as many households as possible to subscribe.[4] Unfortunately, this led to major economic inefficiencies, and some customers were discouraged from purchasing services when prices greatly exceeded costs. This was the case with long distance services in Canada for many years.

In an attempt to protect the sources of the cross-subsidies used to finance below-cost local services, regulators and incumbent telephone companies impeded the development of competition for many years. In turn, this led to less cost reduction and may have led to the slower diffusion of innovation than might have occurred with competition.

The system of cross-subsidies proved to be increasingly inefficient and incompatible with competitive markets and was eventually replaced by the regulator with a system of targeted explicit subsidies. Today, explicit subsidies are mandated by the CRTC only for the provision of basic residential telephone service in high-cost serving areas.[5] This separation of social and economic goals has allowed the pursuit of the social objective of universal access at affordable prices, while minimizing the costs in terms of lost efficiencies.[6]

There have been other examples of regulatory measures that distorted economic efficiency to achieve social goals. These include freezing the price of pay telephone service for several decades (in the 1960s and 1970s and again in the 1980s and 1990s), discouraging experiments with local measured service (in the 1970s) and requiring uniform prices across a broad class of customers, even though costs of service vary greatly within the class (a continuing regulatory practice).[7]

A more recent example of a "fairness-based" regulatory approach that conflicts with the efficient functioning of markets can be found in the CRTC's decision to add a new objective for economic regulation aimed at being "fair" to new competitors. In its decision on the review of its price caps regulatory regime in 2001, the CRTC introduced the objective[8]:

> ...to balance the interests of the three main stakeholders in telecommunications markets, i.e., customers, competitors and incumbent telephone companies; . . .

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[4] There were some efficiency reasons to keep the price of local access low. The ability to reach additional customers added value to other customers, even though they did not have to pay for it. However, the penetration rate of telephone service has been very high for decades, and the value of additional customers has long since become negligible.

[5] See *Changes to the contribution regime*, Telecom Decision CRTC 2000-745, 30 November 2000 for the initial CRTC decision addressing this regime.

[6] The implicit cross subsidy from urban to rural was also largely removed. As well, large business users have seen very significant reductions in price. However, the large contribution from small business customers is still in place.

[7] For example, all customers in Band B are charged the same, whether they live in a multi-unit dwelling or a single, detached house.

[8] *Regulatory framework for second price cap period*, Telecom Decision CRTC 2002-34, May 30, 2002 (Decision 2002-34), at paragraph 99.

Adding the new objective of balancing the interests of new competitors in designing price caps regulation suggests that prices should be set so that the interests of competitors to the ILECs should be promoted or protected, rather than setting prices at levels that would be produced by a competitive marketplace.

Other Commission initiatives have expanded the doctrine that the CRTC can intervene in markets in order to achieve "fairness" to competitors, even where it appears to be contrary to the principles of efficiency or the lowering of prices to consumers.[9] The Commission's goal appears to have been to promote the financial viability of competitors to the ILECs, in order to ultimately provide consumers with the benefits of increased competition. Application of the doctrine has resulted in a new, high level of regulatory intervention aimed at shaping the structure of markets, rather than allowing market forces to determine the success or failure of different service providers. The relative degree of intervention by the CRTC on behalf of new entrants has been very substantial and has led to the imposition of extensive constraints by the CRTC on the activities of the major suppliers of many telecommunications services, the ILECs.[10]

The Panel considers that there should be a separation of the economic objectives from the social and "fairness" objectives of regulation. Designing different regulatory instruments targeted at achieving specific objectives limits the extent of unnecessary conflicts between the objectives and contributes to successful achievement of each.[11]

The guiding principles in designing a new telecommunications regulatory framework for Canada should be:

- to recognize that economic efficiency, social objectives and fairness are separate regulatory goals
- to be explicit about which goals are being pursued in any given regulatory intervention
- to make use of separate regulatory instruments to pursue each.

Application of these principles will add transparency to the trade-offs between the different objectives and the costs and benefits of pursuing them.

**Recommendation 3-2**

**There should be a clear separation between economic and social regulation, with clear identification of the objectives of the regulation and the measures designed to achieve them efficiently, rather than using economic regulation to pursue social objectives.**

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[9] A prime example is the Commission's decision to shield competitors from reduction in ILEC prices that would have been required by the incumbents' price cap regime and the creation of the deferral account with the surplus funds (Decision 2002-34).

[10] An example is the CRTC's treatment of win-back restrictions, which is discussed below in the section on Control of Anti-competitive Conduct.

[11] The desirability of using different instruments to pursue different policy objectives has long been recognized. See, for example, Jan Tinbergen, *Economic Policy: Principles and Design* (Amsterdam: 1956).

Where market forces do not attain social objectives and so government intervention through regulation is required, such intervention should be done in as competitively neutral a manner as possible. In general, economic regulation should not be invoked to promote social objectives. Rather, these social objectives should be the subject of separate and specific obligations applying to all service providers, for example, the requirement for all service providers to provide emergency 9-1-1 service. This is discussed further in Chapter 6, Social Regulation.

### Reasons for Economic Regulation

Economic regulation should be invoked only if it improves efficiency and productivity. Specifically, economic regulation should be relied upon in those instances where competition and market forces alone are not expected to achieve as high a level of efficiency and productivity as can be achieved through regulation. There are three key reasons justifying intervention through economic regulation.

**Significant market power and high prices:** The first reason is related to the presence of significant market power (SMP).[12] In order to maximize its profits,[13] a service provider with SMP has an incentive to keep prices higher and produce lower quantities than those that would normally prevail in a competitive market. As a result, customers who would have purchased some extra units at competitive prices will not be able to do so. This is a waste from the point of view of society as a whole, and hence economic inefficiency. Such pricing also leads to an income redistribution from customers to the service provider since the price for the quantity of service that is produced and purchased is higher than it otherwise would be in a competitive market.

**Abuse of dominance:** A second reason that may justify regulatory intervention relates to the incentives of service providers with SMP to protect their position of market dominance. Such service providers may try to block entry by potential rivals, force existing competitors to exit, or discipline them so they do not try too hard to compete. This type of conduct may amount to an abuse of service providers' dominant position. An abuse of dominance by a provider with SMP that results in (or is likely to result in) a substantial lessening or prevention of competition constitutes anti-competitive conduct. Government intervention may be necessary to control such conduct.

**Network externalities:** A third reason for regulatory intervention relates to the existence of market externalities between customers.[14] The most common example in the telecommunications industry involves what are referred to as "network externalities"; that is, the more customers (or nodes) on a telecommunications network, the more valuable is the use of that network for any given customer, because more customers can be contacted.[15]

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[12] Significant market power denotes a firm's ability to increase its prices significantly in a given market for a non-transitory period, without having its customers cut back significantly on their purchases, either because they are sensitive to prices or because they switch to an alternative supplier or to a substitute product. The expressions "market dominance" and "significant market power" are often used as synonyms. For further information, see the Competition Bureau's Enforcement Guidelines on the Abuse of Dominance Provisions, July 2001. Available online at: **http://strategis.ic.gc.ca/pics/ct/aod.pdf**

[13] These are sometimes referred to as supra-normal profits, which are profits that are larger than may be expected on average for an investment of comparable risk in a competitive financial market.

[14] A market externality is said to exist where one person's actions generate benefits or costs that accrue to others and not to the actor. The person who is acting may not have the motivation to take the best course of action from the point of view of society as a whole. An example of a negative externality is production that generates pollution, the cost of which is borne by society and not the producer. This will likely lead to a level of production that is too high in light of the true cost of production. An example of positive network externalities occurs when the addition of a node to a network confers benefits to existing users at other nodes of the network, benefits that are not captured by the provider or purchaser of the additional node. An example is the addition of a subscriber to a telephone network.

Significant network externalities can result from the interconnection of different networks. The value of a telecommunications network or service is dependent in part on the number of customers who can be reached. Interconnection of two networks increases the number of accessible users from both networks. This increases the value of both networks to their users.

However, interconnection is usually much more valuable to the operator of the smaller network. All other factors being equal, in the absence of interconnection, the larger network will attract the greater number of customers, thus reinforcing the market position of the larger network. It may be in the interests of its operator to refuse to negotiate interconnection and thus to significantly raise barriers to entry for new entrants.

Similarly, the incumbent may be the sole supplier of certain facilities or services that a new entrant needs to be able to provide service to customers, which cannot readily be duplicated for technical or economic reasons. Denial of access to these "essential" facilities and services may also erect very significant barriers to entry.

Regulation that mandates interconnection and access by competitors to essential facilities operated by incumbents may lower barriers to entry sufficiently to allow competitive forces to operate in the corresponding telecommunications services market.

### Reasons Not to Regulate

As discussed above, economic regulation in some circumstances can lead to improvement in the telecommunications sector and in the Canadian economy generally. However, regulation also has costs. These can be quite significant.

In a competitive market, service providers have incentives to reduce costs and prices and to innovate services in order to increase their profits or simply remain in business. Regulation of prices and levels of service constrain service providers' flexibility. Regulators do not have all of the information required to mandate efficient prices and service conditions in competitive markets. Therefore, it is unlikely that prices set by regulators will maximize the benefits from new services or other innovations.

As well, inappropriate regulatory constraints may reduce incentives for cost reduction, investment and innovation from what they would be in an unregulated market. For example, the regulator may require positive outcomes such as sharing cost savings or increased profits with customers and competitors, either directly or indirectly.[16] This in turn lessens the rewards for taking risks and reduces the likelihood that risky innovation and investment will be undertaken.

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[15] The additional value of each customer generally decreases as more are added to the network. This also favours the operator of the larger network.

[16] Yet, increased costs or lower profits stay entirely with the service provider, as they would in a normal market.

Thus, regulation may reduce benefits from innovations and new services and also hinder cost reductions and other efficiency gains. These problems are all the more severe in an industry such as telecommunications that is marked by rapid technological change.

In addition to distortions in the marketplace, regulation in and of itself can be costly. Both the operating costs of the regulatory agency and the compliance costs of the service providers subject to regulation are recovered from the industry and ultimately in large part from customers. The weight of this burden varies with the intensity of regulation.

Finally, economic regulation, like any other set of behavioural constraints, leads to activity to circumvent those constraints. Such activity is a waste from the point of view of the economy and society generally.[17]

## Removing the Presumption of Regulation

It follows from the preceding discussion that any regulatory framework must balance two types of risk. On the one hand, there is a risk that regulation may be applied where it is not needed because competitive forces are sufficient to protect customers' interests. In such cases, regulation may induce distortions, higher prices and fewer choices.

On the other hand, there is a risk of deregulation where a service provider still has SMP. This may result in higher prices in either the short term (through direct exercise of market power) or in the long term (after disciplining competitors or driving them out of the market). A dominant supplier may also try to extend its dominance through anti-competitive conduct. While this may confer benefits on customers in the short term, it may lead to suppression of competition, higher prices and less innovation in the long term.

With the growth in competition and competitive alternatives in the Canadian telecommunications industry along with rapid technological change, the Panel believes any errors of the second sort will generally be self-correcting. New competition will emerge to challenge most remaining areas of SMP. Canada has reached the point, for the vast majority of retail telecommunications markets,[18] where the potential costs to the Canadian economy of continued regulation outweigh any real benefits.[19]

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[17] See Richard A. Posner, "Preface to the 30th Anniversary Edition," *Natural Monopoly and its Regulation* (1999), p. vii:

> The effort to constrain, I argue, is more likely to produce distortions than to bring about a reasonable simulacrum of competitive pricing and output. This is primarily because of information and incentive problems of regulators and because of efforts by the regulated firms to neutralize regulation or to bend it to their advantage.

[18] The term "market" includes both the product or service being offered as well as the geographic area in which it is available. In the regulatory literature, "service" is often used as a synonym of "market."

[19] One leading U.S. jurist has gone so far as to state (Posner, op. cit., p. v):

> ...public utility and common carrier regulation are more trouble than they are worth even in the diminishing number of industries that have pronounced natural-monopoly characteristics, that is, in which average costs decline over so large a range of outputs that a single firm would have a big cost advantage over multiple firms serving the same market.

Accordingly, the Panel believes the presumption in the current *Telecommunications Act* that telecommunications services provided by Canadian carriers must be regulated unless the Commission forbears should be replaced by a presumption of deregulation for all services. Thus, s. 25 of the Act should be repealed and replaced with a new provision that economic regulation should apply to a service provider in a telecommunications market only if there is a finding that the service provider has SMP in that market.

The Panel recognizes that a transitional period will be required. During the transition, services currently subject to economic regulation should remain regulated for a period of 12 to 18 months, during which all telecommunications markets should be examined to determine whether any service provider has SMP. If there is no SMP, the particular market should be deregulated. If there is SMP, economic regulation should continue.

**Recommendation 3-3**

**The *Telecommunications Act* should be amended by removing the current legislative presumption that telecommunications services must be regulated unless the CRTC makes a decision to forbear, and replacing it with a presumption of deregulation whereby**

**(a) economic regulation shall apply only if there is a finding that a service provider has significant market power, and**

**(b) retail telecommunications services shall be offered without the need for tariff filings or similar *ex ante* measures in markets where there is no significant market power.**

**Recommendation 3-4**

**The approach to forbearance established in section 34 of the *Telecommunications Act* should be replaced. New provisions should state that, upon application by any party, telecommunications markets subject to economic regulation should be reviewed. Where the review concludes that there is no longer any significant market power in a market, restrictions on price increases should be discontinued.**

**Recommendation 3-5**

**There should be a transition period of 12 to 18 months, during which time services that are currently subject to economic regulation shall continue to be subject to such regulation until there has been an opportunity to examine whether there is significant market power in markets for these services.**

In the Panel's view, definitions of relevant telecommunications markets, determinations of significant market power and decisions to deregulate should all be made by the TCT, as discussed at greater length in Chapter 4.

## What Should Be Regulated?

For clarity, a distinction must be made between retail and wholesale regulation. Services that are intended to be purchased by the final customer are referred to here as "retail services." Access to facilities and services essential to a competitor are referred to here as "wholesale access." To the degree that these are supplied as a result of an order by the regulator, they are referred to as "mandated wholesale access." Wholesale access as well as interconnection services are collectively referred to as "wholesale services," and their regulation is discussed below in the section on Regulated Wholesale Access and Interconnection Arrangements. But first the chapter deals with the various aspects of regulating retail services.

In considering whether there is SMP in a market for a retail service, the analysis must take into account any interconnection and wholesale access to essential facilities and services that has been negotiated between service providers or ordered by the regulator. This is consistent with the general principle of first looking to lowering barriers to entry as a solution to SMP at the retail level, as described in the following section. Economic regulation at the retail level should be invoked only where SMP persists, despite measures taken at the wholesale level.

### Basic Transmission Services

The Panel believes, for purposes of determining which retail services are subject to economic regulation, basic transmission services should be distinguished from discretionary services. A basic transmission service can be defined as a service that provides a transmission path between two points, along with any functionality required for the path to be used.[20] The path may be:

- circuit-switched, whereby a connection is established at the beginning of the communication session and is dedicated to that session until the connection is ended
- packet-switched, whereby the communication is divided into packets and routed via one or more paths, from origin to destination
- assigned permanently to a particular user, as in the case of a private line.

All other retail services should be categorized as discretionary.[21] The CRTC should review all currently regulated services and determine which are discretionary.

Under the new regulatory framework proposed here, there should be a legislative presumption of no economic regulation of basic transmission services. Economic regulation should be maintained or imposed only where there is a finding that the service provider has SMP in the market for a service. Existing economic regulation of basic transmission services should be reviewed and eliminated where there is no SMP.[22]

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[20] Examples include local and long distance telephone service, as well as various data services.

[21] Examples include options and features such as call forward, voice mail, etc.

[22] The CRTC should continue entertaining applications for forbearance until the proposed regulatory regime is in place. The CRTC's ongoing forbearance decisions follow the approach established in *Review of Regulatory Framework*, Telecom Decision 94-19, September 16, 1994 (Decision 94-19). The CRTC has recently completed a proceeding on how this approach should apply to local exchange services at the retail level. A decision is pending as of this writing (*Forbearance from Regulation of Local Exchange Services*, Telecom Public Notice CRTC 2005-2).

In deciding whether or not to regulate, account should be taken of the CRTC's telecommunications sector experience to date, including its experience in establishing criteria for forbearance in the local exchange services market.[23]

**Recommendation 3-6**

**Economic regulation of retail basic transmission services should be retained or instituted only if there is a finding that a service provider has significant market power in the market for such services.**

### Discretionary Retail Services

There appears to be little danger that service providers will use their dominance in markets for existing discretionary services to appreciably increase prices to customers. This assumption is supported by the CRTC's policies in the past. Indeed, between 1979 and 1998, the CRTC required ILECs to set prices well above costs to maximize "contribution" or profit from these specific services to help cross-subsidize rates for basic local services. From 1998 to 2002, under the CRTC's first price caps regime, the prices for optional local services were uncapped. It was only under the second price cap regime, starting in 2002, that the CRTC placed constraints on price increases for these services. However, even then, the limits were mostly symbolic, allowing for increases of $1.00 per feature per year, amounting to annual increases of 10–20 percent.

If a service is discretionary, demand tends to be more sensitive to prices. This makes further price increases counterproductive, since they would decrease demand, revenues and profits and so mitigate market power. Therefore, there should be no constraints, other than market forces, on price increases for discretionary services. As far as anti-competitive conduct is concerned, the standard controls of anti-competitive conduct should apply.

**Recommendation 3-7**

**Discretionary services should not be regulated to prevent price increases, but subject only to constraints on anti-competitive conduct.**

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[23] The CRTC has established tests for the presence of SMP in its forbearance proceedings. Similar tests can be found in Canada's *Competition Act*, its related jurisprudence and the Competition Bureau's Enforcement Guidelines on the Abuse of Dominance Provisions, July 2001. The test for SMP generally proceeds in two stages. First, the relevant market is defined in terms of the set of products or services that are good substitutes for each other. A market has two dimensions: the product market and the geographic market. The boundaries of a market are determined to be the smallest group of products and the smallest geographic area in which a sole profit-maximizing seller (a "hypothetical monopolist") would be able to profitably maintain prices above competitive levels by a significant amount (usually 5 percent) for a non-transitory period of time (usually one year).

Once the universe of existing competitors is identified, an assessment is made of the extent to which those rivals can constrain any market power that the dominant firm(s) might otherwise possess. Market power is the ability to profitably set prices above competitive levels (or with respect to a material, non-transitory reduction in other factors of competition such as service, quality, variety, advertising and innovation) for a considerable period of time. It is often difficult to measure market power directly. As a result, a number of qualitative and quantitative indicators of market power can be used. These include, but are not necessarily limited to, the following:

- market share, including share stability and distribution
- barriers to entry, including any restrictive conduct allegedly engaged in by the dominant firm(s)
- other market characteristics, including the extent of technological change, the amount of excess capacity and whether customers or suppliers have any degree of countervailing power.

The CRTC has established tests for detecting the presence of SMP in its forbearance proceedings.

## Transition to Deregulated Markets

Under the proposed new framework, services that the CRTC has forborne from regulating should continue to be unregulated. Where the forbearance is conditional, with the CRTC having retained some regulatory conditions, these conditions should be reviewed and removed where no service provider has SMP. This is consistent with the presumption against regulation.

As noted in the preceding subsection, retail basic transmission services that currently are subject to economic regulation should remain regulated for a transition period, during which telecommunications markets should be reviewed to determine whether any service provider has SMP.

Consistent with the presumption against regulation, new basic transmission services should not be subject to economic regulation, unless there is a finding of SMP in the relevant market. However, any party could apply for a determination on whether a service provider has SMP in these new markets. If SMP is found, remedies to control anti-competitive conduct in markets for telecommunications services (as proposed in a later section of this chapter) should be considered first. If these remedies are not adequate to protect customer interests and control anti-competitive conduct, then economic regulation should apply, as described in the following section.

A similar process should apply in the case of re-regulation of basic transmission services that have been deregulated. After deregulation, any party should be able to apply for a finding that there is SMP in the relevant retail services market. If it is determined that there is SMP, there should be a further inquiry into whether the available remedies against anti-competitive conduct, as described in a later section, are sufficient protection. If not, economic regulation should be reinstituted.[24]

If a retail service is found to be discretionary rather than essential and as a consequence economic regulation does not apply, there should be provisions to re-examine the classification of the service and, if necessary, reclassify it as a basic transmission service. Such a review could be initiated on an application by any party. If a service is reclassified as essential, the rules for economic regulation or re-regulation of a basic transmission service should apply.

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[24] The Panel expects resumption of economic regulation to be necessary only exceptionally. If a market has become competitive once before, in the sense that competition has eliminated SMP, then that market is likely a good candidate for competition in future. Supra-normal profits would be a strong incentive for renewed entry.

**Recommendation 3-8**

**(a) Currently forborne retail services should continue to be unregulated. Any current conditions on forbearance should be reviewed and maintained only if significant market power is found.**

**(b) New basic transmission services should be subject to a presumption of no economic regulation.**

**(c) It should be open to any party to request a review of the existence of significant market power in any telecommunications market. If the review finds that a service provider has significant market power in the market, the next step should be to examine whether competition law, as adapted to telecommunications services, is sufficient to protect the interests of customers and prevent anti-competitive conduct. If it is not, then the service should be subject to economic regulation. If the review finds no significant market power, the service should be deregulated.**

**Recommendation 3-9**

**Provision should be made for reclassifying a retail service from a discretionary to a basic transmission service, and vice versa. The usual tests should be applied when a service is reclassified from discretionary to basic transmission in order to determine whether it shall be subject to economic regulation.**

Once a service is deregulated, there should not be any regulatory controls to prevent price increases. If there is no SMP, competitive forces should protect the interests of customers against excessively high prices. However, even after deregulation, controls on anti-competitive conduct should continue.

In the Panel's view, determination of the basic transmission or discretionary nature of a service draws particularly on knowledge of telecommunications technologies and markets and should be performed by the CRTC. The question of whether basic transmission service is subject to SMP and therefore should be subject to economic regulation should be determined by the TCT. The rationale for this proposal is discussed in Chapter 4. The TCT should also apply controls against anti-competitive conduct. Other aspects of economic regulation, including controls on price increases, if necessary, should continue to fall to the CRTC.

## Symmetric Regulation

As discussed in Chapter 1, The Need for Change, the old distinctions among different types of service providers are disappearing. Cable companies are offering local and long distance telephone services over their cable networks as well as high-speed access to the Internet. Similarly, the ILECs are starting to provide television and other video programming over their wireline networks. Network functionality is converging. Increasingly, the operator of any given network is able to offer voice, data and video services, both to fixed locations and on a mobile basis. Service providers are providing competitive bundles of services and applications, based on these multiservice platforms. In the new environment, it will no longer be possible to identify a single "incumbent" service provider.

As well, new entrants may expand their market share and grow to the point where they too have market power. It is not clear which service providers in the longer term will prove to be significant players in particular markets.

The purpose of economic regulation is to remedy market failure, no matter where it is found. It does not matter if the service provider is an ILEC. If a company has SMP and abuses it, economic efficiency and social welfare are reduced, and customers' interests are injured. Good public policy suggests there should be regulatory intervention to prevent such harm. Conversely, service providers with no SMP should not be subject to economic regulation.[25]

Accordingly, the regulatory approaches described in this chapter should apply equally to all telecommunications service providers, not just to the ILECs.

> **Recommendation 3-10**
>
> **All forms of economic regulation should be applied symmetrically to all telecommunications service providers having significant market power in any telecommunications market.**

## What Form Should Regulation Take?

There are two broad approaches to the regulation of retail services. The first is direct regulation of prices and quality of service for services purchased by customers. This is also referred to as "retail regulation." The second approach to regulation is indirect. It involves creating conditions to lower barriers to entry, where these barriers emerge from the unique nature or extremely high duplication costs of certain features of telecommunications networks (i.e. indirect regulation).[26]

The Panel believes, where a service provider has SMP in a retail market, the preferable approach to regulation in that market is to reduce SMP by applying competition law principles designed to lower barriers to entry, thereby relying on competition where possible. It is only when lowering the barriers to entry is not an effective means to prevent the harm done by an abuse of SMP that recourse is needed through direct regulation of retail services.

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[25] They should continue to be subject to social and technical regulation.

[26] Great care must be exercised in designing measures to lower barriers to entry, so as not to provide inappropriate incentives to both incumbents and new entrants.

Direct economic regulation will continue to be necessary for markets where there is SMP and where control of anti-competitive conduct is not sufficient to curb abuses of that SMP. Such regulation includes restrictions on pricing as well as other terms and conditions of retail services.

As discussed below in a later section, regulation can also take the form of requiring service providers with SMP to interconnect with, and to make certain facilities and services available to, competitors at regulated wholesale prices on specified terms and conditions. Such measures encourage competition and may be sufficient to remove existing SMP. In such cases, it is generally preferable to focus on wholesale regulation and to deregulate the associated retail markets. In other cases, however, wholesale regulation is not sufficient and some form of direct economic regulation is necessary at the retail level.

The Panel notes that the European Union's Framework Directive, Access Directive and Universal Service Directive[27] attempt to resolve problems of lack of competition in telecommunications markets by regulating wholesale access and interconnection and by turning to retail regulation only when wholesale regulation is not sufficient. This approach is being implemented by member states of the European Union such as the United Kingdom. It is also the approach being followed in Australia and New Zealand.[28]

### Direct Regulation of Retail Services

Direct retail service regulation looks at prices and the accompanying level of service. In the telecommunications area, the two most common forms of direct retail service regulation are price cap regulation[29] and rate-base/rate-of-return regulation (RBROR).[30] It is generally accepted today that RBROR does not provide proper incentives for increased efficiency and productivity. Its principal virtue is fairness between customers, on one hand, and investors on the other, permitting the latter to earn a fair rate of return, but no more. However, as a form of cost-plus regulation, it provides incentives to increase the costs of producing regulated services, not to decrease them.

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[27] Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), available online at: **http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_108/l_10820020424en00330050.pdf**; Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive), available online at: **http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_108/l_10820020424en00070020.pdf**; Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive), available online at: **http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_108/l_10820020424en00510077.pdf**

[28] For further information, see New Zealand, Department of Communications, *Ministerial Inquiry into Telecommunications Final Report*, November 27, 2000; and Commonwealth of Australia, *The Performance of the Australian Telecommunications Regulatory Regime*, Senate Environment, Communications, Information Technology and the Arts Committee Report, August 10, 2005.

[29] Under price caps, the average price of all capped services is calculated as an index. At all times this index cannot exceed a target index based on prices at the start of the price cap period, adjusted upward annually for experienced inflation and adjusted downward annually according to a pre-set target reflecting expected productivity increases.

[30] Under RBROR, a regulated company's revenues and expenses are forecast one year out. If the resulting return on equity is below an allowable rate of return, which is the minimum that financial markets require before advancing new equity, the company is allowed to increase its prices to generate just enough revenues to close the gap. Similarly, if the forecast return is higher than the allowed rate of return, the company may have to decrease its prices.

As the CRTC has recognized, price cap regulation offers better incentives for efficiency and productivity gains. By allowing the regulated company to retain productivity gains in excess of a target level, price cap regulation provides incentives to increase productivity. As well, linking retail price changes to inflation and target productivity gains encourages allocative efficiency and protects end customers from excessive prices.

Price cap regulation has other advantages. It is easier to administer, eliminating the need for detailed oversight of a regulated company's operations and finances. It provides better incentives for innovation and reduced costs. It is flexible and can accommodate rate rebalancing, rate restructuring and subsidies as necessary. It can be applied in all situations where RBROR has been used to protect customers from excessive price increases. Finally, it requires less regulatory intervention in the operations of regulated companies and so minimizes regulation-induced distortions.[31]

Since price cap rules are relatively simple, *ex ante* ("prior") approval is not required for effective enforcement, particularly given the stronger *ex post* ("after the fact") remedies recommended in this report. Given the desirability of minimizing regulatory burden, enforcement of price cap constraints should be limited to *ex post* enforcement by means of an annual filing requirement or upon complaint by a customer or a competitor.

**Recommendation 3-11**

**A price cap framework should be used when economic regulation of retail services is necessary, and enforced on an *ex post* basis by means of an annual filing or in response to a complaint by a customer or a competitor.**

## Price De-averaging

Originally, a principal objective of telecommunications regulation was fairness. This has long been a cornerstone of the public utility model of regulation, which formed the basis of telecommunications regulation in Canada throughout the 20th century and into the 21st. Section 27.(2) of the current *Telecommunications Act* prohibits "unjust discrimination" among customers or (as interpreted by the CRTC since 1977)[32] between a regulated service provider and a competitor.

One application of the prohibition against unjust discrimination has been the regulatory requirement for uniform pricing (or "price averaging," as it is known in telecommunications). The current regulatory framework still assumes that charging different prices to different customers for the same service is a form of unjust discrimination, unless there are demonstrable cost differences or similar justification. Even where there are such differences, the CRTC has generally required ILECs to offer services under a general tariff, available to all customers. Accordingly, current CRTC regulation generally requires the same prices to be charged to all customers in a class, rather than allowing different prices for different customers.[33]

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[31] In this context, it is questionable why NorthwesTel or the smaller independent ILECs should still be regulated under a RBROR regime.

[32] See *Challenge Communications Ltd.* v. *Bell Canada*, Telecom Decision CRTC 77-16, affirmed (sub nom. *Re Bell Canada and Challenge Communications Ltd.*), [1979] 1 F.C. 857, leave to appeal denied [1978] 2 S.C.R. v.

Charging different prices to different customers, or "differential pricing,"[34] is a normal business practice. In some cases, it could constitute anti-competitive conduct. If so, it should be dealt with as described in the next section. However, CRTC prohibitions on differential pricing extend beyond anti-competitive concerns and seem to be based on "fairness" principles. Unfortunately, in this case, fairness conflicts with normal business practice and indeed can lead to a significant loss of efficiency.

Differential pricing is especially important in industries with relatively large fixed and common costs. The widely accepted economic theory of Ramsey pricing[35] suggests that the best way of recovering such fixed costs is through different markups of price over incremental costs for various market segments. The more price-sensitive the customers in a given market segment, the lower the markup that should be charged to them. Thus pricing targeted to customers who are also targeted by competitors should not be prohibited *per se*. This type of targeted pricing takes place in most competitive markets. There is no good policy reason to prevent it, unless it constitutes anti-competitive conduct.

Differential pricing may be necessary if a firm is to maintain financial viability by covering its fixed costs, or to ensure the potential profitability of a new service. If some customers are very price sensitive, or place a lower value on the service in question, it may take very low prices to induce these customers to buy or to increase their purchases. If the incremental costs of providing the service are very low, it may be profitable to offer the service to these customers even at these very low prices, since there will still be some contribution toward the recovery of fixed costs.

Obliging a service provider with SMP to charge a uniform price to different groups of customers may be seen by some as a regulatory measure to protect particularly vulnerable customers. The reasoning is that a service provider would not want to risk losing those customers who have choices by increasing prices across-the-board; the result would be that those customers with few or no choices might be able to piggyback on those lower rates. However, concerns regarding the potential for price de-averaging to result in anti-competitive pricing in the lower-priced markets or excessive prices in higher-priced markets are best addressed by controls on anti-competitive conduct and price cap regulation in the relevant markets. Given the objective of promoting an efficient and productive economy, inefficient price-averaging requirements should not be imposed on the majority in the interests of protecting a few subscribers, particularly where other, more appropriate safeguards are available.

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[33] See, for example, Issues with respect to the provision of optical fibre, Telecom Decision CRTC 2005-63, 21 October, 2005 at paragraph 43 (requiring that dark fibre be offered pursuant to a General Tariff).

[34] The term "differential pricing" is used in the report synonymously with the term "price discrimination" as that term is used by economists.

[35] For an explanation of Ramsey pricing, see OECD, *Access Pricing in Telecommunications* (Paris: OECD, 2004), pp. 28–30. Available online at: **http://www.oecd.org/dataoecd/26/6/27767944.pdf**

The public utility model of price averaging is no longer suitable in today's increasingly dynamic and competitive telecommunications markets. Social or fairness concerns should be addressed on their own merits and dealt with through targeted regulatory initiatives, not broad uniform pricing requirements. There should be no prohibition on price differentiation and targeted pricing unless it is found to be anti-competitive conduct, using the criteria described in the next section.

**Recommendation 3-12**

**There should be no prohibition on price differentiation and targeted pricing unless they are part of a practice that is determined to be anti-competitive conduct.**

The Panel believes the broad prohibitions of ss. 27.(2) against unjust discrimination and undue or unreasonable preferences are much too general and rely too greatly on the regulator's discretion. Potential problems and abuses should be specifically identified and measures should be designed as narrowly as possible to target them adequately. As a separate matter, the requirement in ss. 27.(1) for rates to be just and reasonable is an attempt to balance the interests of customers as a body on the one hand with those of a service provider on the other hand. While appropriate in a monopoly environment, this provision has run its course and should be replaced by reliance on competitive market forces where possible and by explicit constraints on price increases otherwise. In the Panel's view, both ss. 27.(1) and 27.(2) should be removed and replaced by more specific measures to address carefully defined issues and problems.

**Recommendation 3-13**

**The current standards for price regulation as set out in section 27 of the *Telecommunications Act* are too general and allow for too much discretion. They should be replaced by more specific measures targeted at consumer protection and control of anti-competitive conduct.**

## Control of Anti-competitive Conduct

Service providers with SMP may try to preserve or extend their dominance through anti-competitive conduct. Such conduct has the effect of disciplining competitors or preventing their entry, with the likely result of substantially lessening or preventing competition.

Regulatory measures should be in place to sanction service providers who engage in this type of conduct. However, normal business conduct, characteristic of competitive markets, should be permitted. Care should be taken to ensure that control of anti-competitive conduct does not "chill" or unduly discourage normal competitive activity. Otherwise, regulation could become counterproductive.

Consistent with the deregulatory approach adopted by the Panel, the new regulatory framework should set out broad principles to prohibit anti-competitive conduct instead of detailed *ex ante* rules. In the event that conduct infringes upon these principles, *ex post* enforcement should be swift, and penalties should be severe enough to act as a meaningful disincentive to such conduct.

Over the years, the CRTC has developed a number of forms of retail market regulation aimed at preventing anti-competitive behaviour by ILECs. These regulatory restrictions have a number of features in common that are not usually found in competition law.

### *Per se* Prohibitions

First, the most onerous retail market restriction is the *per se* ban on certain acts; that is, the acts are prohibited whether or not they have anti-competitive intent or effect and whether or not they are likely to substantially prevent or lessen competition.

For example, the establishment of floor prices is intended to prohibit ILECs from pricing below costs. The regulatory goal is to prevent predatory pricing (also called "predation"). However, the CRTC's prohibition against below-cost pricing for non-forborne services is absolute.

A major factor to be considered under competition law principles is the possibility of recoupment of short-run losses; that is, whether the predation is in fact profitable in the long run by reducing or eliminating competition in the market in question and then raising prices to monopoly levels, or by establishing a reputation for "toughness" and so "chilling" competition in other markets in which the firm operates.

At present, the CRTC does not require evidence that recoupment is likely to occur before it prohibits below-cost pricing and other conduct that it considers to be anti-competitive. As a result, such conduct is banned even where the conduct would be irrational if driven by anti-competitive intent or effect. As well, the CRTC does not examine the likely impact on competition and ultimately on customers of such practices. Benign and harmful conduct is banned together. This blanket prohibition may deprive customers of the benefits of price cuts that do not substantially lessen competition. Indeed, the result may be to dampen competition rather than encourage it. After all, intense price rivalry is an objective of competition policy.

Traditionally, under RBROR regulation, the risk of recoupment was very high — high enough that *per se* limitations on below-cost prices may have been justified. However, with the move away from RBROR to price cap regulation, this is no longer the case. Furthermore, consolidation in the industry has resulted in fewer but better-financed and more stable competitors in many markets, thereby increasing the costs of any predation strategy and reducing the likelihood of eventual recoupment.

The Panel concludes that continuing to enforce blanket prohibitions on below-cost pricing, without taking into account the circumstances of the case, is no longer necessary or appropriate.

Another example of a *per se* restriction is the "win-back" prohibition. Currently, the CRTC prohibits an ILEC from directly contacting customers who have moved to a competitor for their local exchange service for purposes of persuading the customer to switch their service back to the ILEC. The no-contact/win-back restriction runs for three months from the loss of a customer for business service and twelve months for residential customers.

One justification for the win-back restrictions is that customers should be given an opportunity to try a competitor's service and judge the quality and reliability before being exposed to the incumbent's win-back efforts. In effect, the rules created a temporary protection for the new entrant against targeted marketing efforts by the ILEC.

However, marketing to one's competitor's clients is a major objective of many campaigns in various sectors of the economy. Often, customers who have switched once can be induced to switch twice (and more). These customers tend to be more responsive to better offers. As a result, it is rational for the ILEC to target these customers. It is also beneficial, at least in the short run, for the customers. Indeed, making offers and counter-offers to the same customers is the very essence of competition.

Unless a win-back campaign can be shown to significantly lessen competition, with the ensuing detriment to consumers outweighing the benefits to them (a very unlikely occurrence, in the Panel's view), win-back campaigns should not be restricted by the regulator.

### *Ex Ante* Rules

The CRTC's restrictions are enforced on an *ex ante* basis, via prior approval of tariffs, rather than on an *ex post* basis. For example, an ILEC proposing a price decrease for a service must satisfy the CRTC that the new price is set above the floor price before it is allowed to implement the change. By contrast, *ex post* enforcement would allow a price change to be implemented and would impose penalties only if the change were subsequently found to be part of a practice of anti-competitive conduct.

The CRTC started developing these regulatory restrictions against below-cost pricing by ILECs in 1979,[36] well before passage of the current *Competition Act* and its provisions for civil offences in cases of abuse of dominance. Hence, the CRTC had little guidance from competition law and developed its own, often unique, measures. In addition, and as stated above, under RBROR, the risk of recouping losses from anti-competitive conduct was high.

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[36] See *Inquiry into Telecommunications Carriers' Costing and Accounting Procedures: Phase II — Information Requirements for New Service Tariff Filings*, Telecom Decision CRTC 79-16.

In an environment of tight control of markets in which competition was just beginning and where the threat of anti-competitive conduct was high (because of ease of recoupment), it is to be expected that the CRTC would require *ex ante* controls in the form of prior tariff approvals and accompanying documentation. However, telecommunications markets have changed. Most are now competitive at varying levels of intensity. Therefore, the risk of inadvertently discouraging or sanctioning legitimate price and service competition has significantly increased. As well, as regulatory mechanisms have evolved away from RBROR and, as the scope of monopoly markets has shrunk, the chances of recoupment have decreased dramatically.

In such circumstances, the Panel believes it is no longer appropriate to require *ex ante* control of conduct that may prove to be anti-competitive. Rather, attention should turn to stopping behaviour that has been demonstrated to be anti-competitive, with sanctions that are severe enough to discourage future conduct of this sort.

It follows that the restrictions on anti-competitive conduct, developed by the CRTC in another era and under other incentives, need to be reviewed to determine whether they are still appropriate.

### Competition Law Approaches

In practice, it can be very difficult to distinguish healthy competitive rivalry from anti-competitive conduct. Accordingly, modern competition law has developed specific approaches to distinguish pro-competitive from anti-competitive conduct. In applying these approaches, competition law attempts to disallow conduct that is anti-competitive (referred to as Type I errors) and to allow bans on conduct that is pro-competitive (Type II errors). Many competition law commentators consider Type II errors to be more serious, as they can chill the very competitive conduct that is beneficial to society.[37] As well, prohibiting pro-competitive practices deprives customers of immediate benefits, which should not be dismissed lightly.

To address anti-competitive conduct in the telecommunications market, the provisions of the current *Competition Act* cannot be adopted word for word but can serve as a framework. Telecommunications is a network industry, with large sunk costs and significant economies of density and scope as well as positive externalities.[38] In such an industry, network effects are important, which naturally allow some players to have very large market shares in equilibrium. As well, the definition of the proper market for further analysis can be particularly difficult in telecommunications markets.[39]

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[37] See Herbert Hovenkamp, *The Antitrust Enterprise: Principle and Execution* (Cambridge, MA: Harvard University Press, 2005), pp. 45ff.

[38] Sunk costs are expenditures that have been incurred and cannot be recovered if operations are discontinued. Economies of density occur if unit costs decline as volume of output increases at a given location. Economies of scope occur when the cost of producing two products together is less than the combined costs of producing the two products separately. See also note 12 above.

[39] In theory, every location can be viewed as a different market for the purposes of access and every route (or origin–destination pair) a different market for purposes of transport. In the market for local services, this can lead to millions of markets. It is not administratively feasible to examine all of these markets individually on an *ex ante* basis, for example in the context of a decision on forbearance. Here, some degree of aggregation of markets is necessary before analysis can proceed. But different markets can be examined individually on an *ex post* basis, focusing on those particular markets where there have been complaints of anti-competitive conduct.

The Panel considers that s. 79 of the current *Competition Act* provides an appropriate starting point for developing a framework for analysis of complaints of anti-competitive conduct in today's competitive telecommunications industry. In particular, for a finding of abuse of dominance, there must be findings of:

- market dominance, synonymous with SMP
- a practice of anti-competitive acts
- an effect of likely preventing or lessening competition substantially in a market.[40]

In considering the third condition, an important element to consider is whether the substantial lessening or prevention of competition is a result of superior competitive performance.[41]

To assist in interpreting the second condition above, the *Competition Act* gives a non-exhaustive list of anti-competitive acts in s. 78. In the Panel's view, the list of acts in section 78 is not well suited to telecommunications markets. Some of the acts are very unlikely to be found in telecommunications, for example, freight equalization. As well, some acts that could be problematic in telecommunications, such as refusing interconnection, are not listed in s. 78.

Accordingly, the Panel believes a somewhat modified set of rules and guidelines should be established to assist in distinguishing anti-competitive conduct from vigorous competitive rivalry. This task should draw on competition law principles as expressed in s. 79 of the *Competition Act* as well as on detailed knowledge of the telecommunications industry. This effort can be expected to be a significant one, given the complexities of the markets under examination.

The Panel believes work on this issue should begin as soon as possible, without waiting for amendments to the *Telecommunications Act*. A review of the current approach to regulation of anti-competitive conduct in telecommunications markets is needed in any case, whether or not the *Telecommunications Act* is amended.

A working group drawn from among staff members of the CRTC and the Competition Bureau, with the assistance of outside experts as necessary, should be established as soon as possible after the government's response to this report:

- to review both current CRTC practices and competition law principles and experience with regard to the control of anti-competitive conduct
- to design a new set of provisions and processes governing the control of anti-competitive conduct in telecommunications services, based on this review and on adapting competition law principles to telecommunications markets
- to develop a set of telecommunications-specific guidelines for market definition and market analysis, again to reflect the specific characteristics of telecommunications.

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[40] *Competition Act*, R.S.C. 1985, c. C-34, s. 79(1).

[41] *Ibid.*, s. 79(4). Note that the current wording of s. 79(4) appears to be in error, with the phrase "a result of superior competitive performance" attaching to the practice in question, rather than to the substantial lessening or prevention of competition.

**Recommendation 3-14**

**Control of anti-competitive conduct in telecommunications service markets should be guided by competition law principles, suitably modified to take into account the specific features of the telecommunications service industry.**

**Recommendation 3-15**

**A working group should be established and comprised of members drawn from both the CRTC and the Competition Bureau as well as independent experts. The working group should draw upon competition law principles and knowledge of the telecommunications industry, as soon as reasonably feasible, to develop specific guidelines for the application of competition policy to the industry, including**

**(a) specification of the types of practices that could constitute abuse of dominance, and**

**(b) guidelines for market definition and analysis of significant market power.**

## Role of Retail Tariffs

### Tariff Filings

Currently, ILECs must file tariffs with the CRTC for all telecommunications services that are not forborne. The tariffs must describe proposed prices and other terms and conditions governing how the services will be offered. The applicant must receive approval of the tariff before offering the new service or before changing the prices or conditions of an existing service.

Broadly speaking, there are two kinds of retail tariff: general tariffs, designed for mass markets (especially residential and small and medium-sized business customers); and customer-specific arrangements, designed for individual customers (often very large enterprises). Both kinds of tariff serve several functions. First, they are treated, for many purposes, as similar to a service contract, specifying the rights and obligations of the service provider and the customer. Second, they are publicly available and thus disseminate information on the service provider's prices and other terms and conditions. This information can be used by other customers in their dealings with the service provider. Third, the tariff approval process is a major vehicle by which the CRTC has traditionally set *ex ante* regulatory restrictions on a service provider's actions.

General tariffs also play a fourth role. As discussed above in the section on forms of regulation, since they are designed for a mass market, they offer the same prices and non-price terms to all customers who wish to avail themselves of a service. This in turn helps promote the traditional fairness objectives of no unjust discrimination and, particularly, uniform pricing. In line with its interpretation of ss. 27.(2) of the *Telecommunications Act*, the CRTC continues to prefer new services to be made available through general tariffs rather than through customer-specific arrangements. As discussed above, the Panel finds regulatory requirements for uniform pricing for its own sake, and absent anti-competitive conduct, is no longer necessary or appropriate.

The requirement for *ex ante* approval of tariffs imposes certain regulatory costs on service providers. First, the tariff approval process and the requirement for supporting documentation are administratively burdensome and costly to produce. Second, *ex ante* approval of tariffs can introduce lengthy delays from the time a service provider makes a decision to introduce a service to the time when it can offer it to customers. At times in the past, such delays have extended for months or occasionally even years. However, the CRTC recently has introduced streamlined processes that can in some cases reduce the time to approve a tariff to a matter of ten days or so.

Nonetheless, in a rapidly evolving market, a delay of ten days, combined with the greater amount of time required to assemble the information necessary to comply with CRTC filing requirements, can impede a service provider's ability to respond to customer requests or to marketplace developments. This is especially true in a competitive "bid" situation, where a counter-offer may have to be immediate to be of value. In these instances, any regulatory requirement to prepare tariff applications and to receive prior tariff approval can hinder competition and potentially deprive customers of lower prices.

A primary purpose of prior tariff approval by the CRTC today is *ex ante* screening to enforce:

- prohibitions against unjust discrimination (largely in the form of constraints on differential pricing)
- restrictions on promotional activity
- price floors designed to address anti-competitive behaviour
- price cap constraints.

In all cases, the Panel recommends replacing *ex ante* approval with *ex post* enforcement and eliminating restrictions. Consequently, under the regulatory framework proposed by the Panel, prior tariff approval will no longer serve a useful purpose.

With a move from *ex ante* to *ex post* regulation, the current tariff process clearly needs changes. There are two issues:

- Should the filing of tariffs still be required for services that are regulated?
- If so, should there be a tariff approval process and what form should it take?

With respect to the first issue, tariffs can be regarded as similar to mass market contracts, setting out each party's rights and obligations. To the degree that *ex post* regulation will be called upon to enforce these rights and obligations, it is useful to have them set out in a tariff on file with the regulator.

It is generally useful to have tariffs public and open to inspection by all parties. However, there are advantages to having tariffs for which certain key terms are kept confidential. For example, confidentiality will allow service providers greater flexibility to strike different deals with different customers, as in normal competitive markets, reflecting the circumstances of each customer. Open or public contracts can be a medium for anti-competitive coordination of pricing, if there are several suppliers in the particular market, which is another reason that supports keeping tariff filings confidential. However, under the approach proposed by the Panel, prices will continue to be regulated only if the service provider who is filing the tariff has significant market power. Placing information in customers' hands regarding that supplier's pricing and other practices will help redress the imbalance of power and the relative lack of information that disadvantages the customer.[42]

**Recommendation 3-16**

**Telecommunications service providers should continue to file tariffs for services that are subject to economic regulation. These tariffs should be open to public inspection.**

The Panel believes it should be the service provider's choice to use a general tariff intended for a mass market, or a series of customer-specific arrangements for different customers. This approach provides the service provider with the flexibility to accommodate changing market needs, implement price differentiation and otherwise respond to increasing uncertainty and rapid market changes.

### *Ex Ante* versus *Ex Post* Tariff Approval

The Panel believes there should be substantial economic deregulation of services provided in retail markets, generally subject only to the *ex post* safeguards discussed in this chapter and in Chapter 9, Policy-making and Regulatory Institutions. The move to a regulatory framework that focuses on *ex post* enforcement suggests that *ex ante* approval of tariffs is not necessary. However, there may be legitimate regulatory concerns related to social or technical implications of a change in conditions of offering a regulated service.

Therefore, the Panel considers that tariffs for regulated services should be subject to a "negative disallowance" process. Under this process, a tariff would automatically come into effect seven days after it is filed, unless within that time the tariff is disallowed or suspended for further investigation. Under the proposed approach, reasons should be provided for any suspension as well as an estimated date by which a final decision on the tariff can be expected.

**Recommendation 3-17**

**Tariffs for regulated services should be subject to a negative disallowance process, in that they would automatically come into effect seven days after they are filed, unless they are suspended or disallowed by the CRTC, in which case the CRTC should provide**

**(a) the reasons for a suspension or a disallowance, and**

**(b) an indication of when a final decision on a suspension will be made.**

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[42] Open tariffs also can serve as a source of information to competitors to help them detect anti-competitive conduct and, where appropriate, formulate a complaint in a timely manner.

### Bundles of Services

Telecommunications service providers offer bundles of services for a number of reasons, such as to add value to customers by integrating functions or to offer price discounts analogous to volume discounts. If all of the services in a bundle are deregulated, then it follows that the bundle offering also should be deregulated. Conversely, if all elements of the service bundle are subject to economic regulation, then the bundle also should be regulated. An issue arises, however, when the bundle offering combines services that are deregulated with elements that are still subject to economic regulation.

For bundles containing both regulated and deregulated services, there is no need for restrictions on price increases for the bundle, as long as the regulated service elements in the bundle are available on a stand-alone basis. If a customer thinks that the price of the bundle is too high, the customer has the option of purchasing the individual regulated elements at prices that are regulated. As for the unregulated elements of the bundle, competitive pressures protect the customer's interests.

There may be a concern that the service provider of a bundle containing both regulated and deregulated service elements may use the bundle to circumvent downward pricing limits or other constraints applicable to the individual regulated elements. To guard against these types of anti-competitive actions implemented via bundles, there should be a requirement to file tariffs for bundles that contain service elements subject to economic regulation. These tariffs should not need prior approval to come into effect and should not be subject to a negative disallowance process.[43] However, they should be subject to *ex post* challenge on the grounds that they constitute anti-competitive conduct. The appropriate tests for anti-competitive conduct should then apply.

### Discontinuing Retail Services

Today's telecommunications markets are increasingly dynamic, with new services replacing old ones and antiquated ones being phased out. In the rapidly changing technological environment, these changes are inevitable and regulation should not stand in the way. However, discontinuance of retail telecommunications services can cause serious inconvenience and disruption to the lives and businesses of customers if there are no ready substitutes.

Accordingly, the Panel proposes that under the new regulatory framework, a service provider should be allowed to discontinue a regulated retail service only with the permission of the regulator. The regulator would consider social impacts as well as the availability of other services to provide adequate substitutes before authorizing a service provider to discontinue a regulated service in any given market or location.

Because of the CRTC's specialized expertise in this area and because of the social impacts, the Panel recommends giving the power to approve discontinuation of a regulated service to the CRTC.

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[43] The negative disallowance process does not need to apply to the bundling of regulated and unregulated services. To the degree that the elements of the bundle are regulated, any social and technical concerns will have already been addressed through the regulatory process.

For deregulated services in markets where there is no SMP,[44] if any service provider discontinues provision of a service, customers may often be able to obtain a satisfactory substitute from another provider.[45] However, the customer will have to make appropriate arrangements, and this can take time. Accordingly, before discontinuing a deregulated retail service to any location, a service provider should be required to give sufficient notice to affected customers. The length of the notice period should depend on circumstances, such as the availability of a ready substitute and assistance in migrating to it.[46]

**Recommendation 3-18**

**A telecommunications service provider should be allowed to discontinue a regulated service only if authorized by the CRTC. A telecommunications service provider of a deregulated service should be able to discontinue service without authorization, provided that reasonable notice is given to customers.**

## Regulated Wholesale Access and Interconnection Arrangements

The discussion now turns to the regulation of wholesale access and interconnection services (collectively referred to as "wholesale services").

As discussed earlier, telecommunications markets are characterized by network effects. The greater the number of customers accessing a given network, in general, the more valuable is the network. In addition, certain telecommunications facilities or network elements cannot easily be duplicated, either technically, because of their special nature (e.g. telephone numbers) or economically, because of economies of scale (e.g. access networks in very low-population-density areas). These features of telecommunications networks can constitute significant barriers to entry into the corresponding markets.

A major role of economic regulation of telecommunications markets is to reduce these barriers to entry. Thus, interconnection allows a new entrant to enjoy the same network reach as an incumbent, without obliging a complete duplication of the incumbent's network. Interconnection also maintains, or increases, the value of any given network to the customers accessing it. As well, access to incumbents' essential facilities,[47] whether through voluntary commercial agreements or, in the last resort, through regulatory obligation, allows a new entrant to put in place essential components of its network, even where these would normally be in the nature of a natural monopoly.

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[44] Discontinuance of service may also be restricted by a service provider's obligation to serve. See Chapter 6, Social Regulation, for a discussion of this issue.

[45] If only one service provider remains in the market for an essential service, it will likely have SMP and so will be subject to economic regulation. Thus it will have to seek regulatory authorization before abandoning service.

[46] Current procedures for discontinuing services are set out in Telecom Circular CRTC 2005-7, 30 May 2005.

[47] "Essential facilities" are facilities and services that are needed by a competitor so it can build its own network and offer competing services, but that cannot technically or economically be duplicated. The concept is discussed further in this section, below.

A central objective of the telecommunications regulatory framework should be to maximize incentives for network efficiency, innovation and investment. A fundamental determinant of these incentives is the scope of "mandated wholesale access."[48]

The Panel concludes that the scope of wholesale access currently required by the CRTC is too broad and that it undermines incentives for competitive entry, investment and innovation. The scope of such mandated wholesale access should be narrowed. However, to ensure that service providers have an opportunity to adapt to the new environment, there should be a transition period during which all existing mandated wholesale arrangements will remain in place. The remainder of this section gives the Panel's reasons for these conclusions.

### Access and Interconnection

There are two general types of services that telecommunications service providers often afford one another. The first category, referred to collectively as "wholesale access" services, involves services, network functions or facilities that are used by a service provider in provisioning its network in order to supplement network facilities that it already owns or intends to build (or "self-supply"). This category includes retail services that are also used by end-users as well as services made available only between service providers. Examples include local and long distance private line facilities,[49] local loops and services that "transit" traffic from a carrier to one or more other carriers via an intermediary carrier. Wholesale access services can be made available under either mandated arrangements or voluntary commercial arrangements.

New service providers wishing to make maximum use of their own facilities prefer to lease from other providers only the specific elements needed to provision their networks. Where the incumbent does not make the desired network elements available on their own but only as part of a more comprehensive service, new entrants are forced to purchase more than they might like. At a new entrant's request, the incumbent may separate out or "unbundle" just those network elements desired by the new entrant. This can occur through a commercial agreement or through a mandatory regulatory order. The resulting network elements and ancillary services typically are not available to nor indeed demanded by retail customers. That is why they are referred to in this report as "wholesale access."

The second category of services that telecommunications service providers obtain from one another consists of interconnection services. Interconnection services permit communication between customers of different networks.[50] Interconnection arrangements are required even in those situations in which the service providers rely entirely on their own facilities in provisioning their networks. Interconnection services thus differ from services provided under mandated wholesale arrangements in that both incumbents and entrants require interconnection services.

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[48] As noted in an earlier section, "mandated wholesale access" refers to the extent to which ILECs or other service providers are required by regulation to make parts of their network available to their competitors at regulated rates.

[49] A private line is a telecommunications transmission facility between two or more points that is dedicated to the user.

[50] Interconnection has always been considered in terms of traditional telecommunications operations. However, what is happening in the Internet is also in many ways the same as interconnection. Internet access providers also must arrange for customers on their network to reach nodes on other providers' networks. Providers usually enter into commercial or "peering" arrangements.

Both also control an interconnection "bottleneck" in the sense that if they do not permit interconnections, customers on their two networks will not be able to communicate with each other.

## Wholesale Access in Canada

For many services, the CRTC originally encouraged competition via resale.[51] Various rulings in the 1980s and early 1990s established a general policy requiring an incumbent who chose to offer a retail telecommunications service to permit resale of that service, whether by competitors or others.

The CRTC introduced facilities-based competition in the 1990s. It did so recognizing that the construction of network facilities by entrants was necessary for the full benefits of competitive entry to be realized. Under resale-based competition, competitive incentives for innovation and efficiency were largely confined to retail components of service provision such as billing systems, marketing, pricing and customer service as well as certain very limited network functions. The purpose of permitting facilities-based competition was to extend incentives for efficiency and innovation to the design, construction and operation of networks. The CRTC found[52]:

> ...efficient and effective competition will be best achieved through facilities-based competitive service providers; otherwise, competition will only develop at the retail level, with the ILECs retaining monopoly control of wholesale level distribution.

The CRTC also recognized, however, that entrants in some locations may be unable, for technical or economic reasons, to duplicate certain ILEC network elements or facilities, or "essential facilities" (defined in more detail below). Without access to these, entrants would be unable to provision their own networks and thus provide service to retail customers. Unbundling these facilities and making them available to entrants at regulated rates was considered to be a precondition for facilities-based competition. Accordingly, the CRTC required ILECs to do so. Unbundling not only facilitated entry but also allowed entrants to make maximum use of the facilities they controlled by allowing them to lease only those facilities from the ILEC that they actually required.[53]

The CRTC mandated the unbundling and pricing of certain other facilities on the same basis as essential facilities, even though they did not strictly meet the definition. These services were considered to be "critical" inputs for competitors. Although theoretically open to competitive provision, limited supply was anticipated, particularly in the early stages of competition.[54]

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[51] *Enhanced Services*, Telecom Decision CRTC 84-18, 12 July 1984.

[52] *Local Competition*, Telecom Decision CRTC 97-8, 1 May 1997 (Decision 97-8), paragraph 73.

[53] Examples of facilities and related services that have been determined by the CRTC to be essential are unbundled local loops in rural, high-cost and less dense urban areas.

[54] See, for example, *Local Competition*, Telecom Decision 97-8, 1 May, 1997 (Decision 97-8), paragraphs 65, 85, 98 and 104; Order 2001-184, paragraph 28; *Competitor Digital Network Services*, Telecom Decision CRTC 2005-6 (Decision 2005-6), 3 February 2005, paragraphs 174, 197 and 200.

These were referred to as "near-essential" facilities and services.[55] The CRTC recognized the potential dangers of mandating wholesale access to more than essential facilities, noting that, if the scope of access was too broad, new entrants "...may not have sufficient incentives to invest in their own facilities, and would enter and remain in the market primarily as resellers."[56]

However, the CRTC considered that requiring incumbents to make near-essential facilities available during the early stages of competition would make it easier for entrants to establish their networks and "acquire the critical mass of customers necessary to make entry and expansion of their own networks economic."[57] Thus, mandating provision of near-essential facilities was intended to provide entrants with a "stepping-stone" toward greater reliance on their own facilities, thereby facilitating the construction of entrant networks. Access to near-essential facilities was initially required only for a five-year period commencing May 1997. However, in 2001, in response to concerns over the slow pace at which facilities-based local competition was developing, the Commission extended this requirement for an indefinite period of time.

As for regulated retail services, the CRTC has instituted quality of service regulation for a number of wholesale services provided by ILECs to competitors. This is intended to ensure that the quality of services provided to entrants as well as the provisioning timelines are comparable with those provided by ILECs to their own retail operations.

### The Proper Scope of Mandated Wholesale Access

As stated above, a fundamental objective of mandated wholesale access should be to maintain incentives for innovation, network efficiency and investment. In the Panel's view, the most effective method for promoting these incentives is to ensure that competitive market forces apply to the broadest possible range of network and service components in as many locations as economically feasible.

To this end, new entrants should have both opportunities and incentives to build their own facilities. Since by definition retail market entry is not possible without competitor access to essential facilities, the regulatory framework should continue to require incumbents to make these available, on a mandatory basis if necessary.

However, the Panel concludes that, given the current state of competition in Canada, continuing to require that incumbents make non-essential facilities[58] available to competitors undermines the incentives for the latter to build alternative facilities. This in turn undermines competitive market incentives for all service providers to be efficient, to innovate and to invest, for several reasons.

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[55] Examples include local loops in the more dense urban bands, transiting of local traffic and certain lower speed local digital access facilities.

[56] Telecom Decision 97-8, paragraph 73.

[57] Order 2001-184.

[58] Non-essential facilities include those that the CRTC has found to be near-essential and others (e.g. operator services). This terminology is adopted here as a result of two regulatory decisions that impact these services. Specifically, access to certain services was ordered to facilitate long distance services before the category of essential and near-essential facilities was established in Decision 97-8 and was never included in the Decision 97-8 definitions.

First, when designing their networks, entrants can either build non-essential facilities or lease them from the incumbent. Mandated wholesale access at regulated prices reduces the cost and especially the risks associated with leasing relative to building. It thus increases the likelihood that leasing will be more attractive than building. Mandated wholesale access therefore tends to discourage entrants from supplying their own facilities, even where doing so would otherwise be economical. The potential negative impact is much more limited if mandated wholesale access is limited to essential facilities.

Second, regulated wholesale pricing reduces the revenues that entrants who build facilities can generate in the wholesale market when they lease those facilities to other providers. This arises because regulatory constraints on ILEC wholesale prices also effectively place upper limits on the price that other service providers can charge for facilities in the wholesale market. This in turn affects investment decisions of both incumbents and new entrants in cases where the viability of constructing network facilities is dependent on their ability to profitably supply facilities on a wholesale basis to other service providers.[59] The broader the scope of mandated access, the greater the negative impact on investment decisions.

Third, artificially low wholesale rates undermine the price levels and revenues that could otherwise be sustained in the retail market. The broader the scope of mandated access, the more significant the impact on retail prices. This compromises the ability of both entrants and incumbents to recover potential network investments.

The argument in support of mandating the availability of non-essential facilities is that it can actually facilitate, rather than hamper, construction of facilities by entrants by providing them with a "stepping-stone" until the day they can build their own facilities. The validity of this argument rests entirely on the assumption that the CRTC can set prices that are both:

- low enough to facilitate entrants' ability to expand their networks and more quickly acquire the customer base that would justify construction of their own facilities
- high enough to provide entrants with sufficient incentives to build such facilities.

With perfect information, the CRTC might be able to achieve this balance. In practice, such information is not available and the prices it sets are arbitrary to some degree. Attempts to "fine-tune" or "manage" entry and investment incentives in this manner thus pose an unacceptable risk that entrants' incentives will be compromised.

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[59] The wholesale market is not only an important source of revenue for facilities-based entrants, but also a means to reduce the risk of capital recovery. A carrier that serves both the wholesale and retail markets has two opportunities to contend for the business of any single end-user: once directly through the provision of retail services and once indirectly through the provision of wholesale services to other carriers that may serve the customer on a retail basis.

There is no evidence in Canada that the CRTC's "stepping-stone" strategy has provided an effective transition to greater reliance by entrants on their own facilities. There is, on the other hand, reason to believe these policies have distorted the behaviour and incentives of new entrants in Canadian telecommunications markets.[60]

When wholesale access to particular essential facilities is mandated after new entrants have already constructed comparable facilities, the value of these entrants' network investments is reduced. Even in areas where decisions with such retroactive effects have not occurred, a broad approach to mandated wholesale access raises the possibility that it may happen in the future. This increases the risk of network investments from the perspective of entrants.

Therefore, while the CRTC has identified facilities-based competition as an objective of its regulatory framework, it has adopted mandated wholesale access policies that, in the Panel's view, seriously undermine, if not foreclose, the achievement of that objective.

One argument advanced in favour of a very broad scope of mandated wholesale access is that such an approach would promote all forms of competition by making it easier for competitors to resell any portion of the ILEC's network that they want. However, in the Panel's view, a broader scope makes the distortion of entry and investment decisions more pervasive. For this reason, a broad scope of mandated wholesale access would not in fact promote all forms of competition. Rather, it would promote only one form of entry (i.e. resale), thus perpetuating disincentives for new entrants to build facilities and entrenching the ILECs' SMP over the network and its elements. This would extend the need for a broader scope of regulation than would otherwise be necessary.

Mandated wholesale access in effect is a requirement imposed on the incumbent to share network facilities and functions. The more extensive the scope of network elements that are shared, the greater the uniformity of the underlying networks used by both ILECs and entrants. Because ILECs are forced to share network innovations with competitors, these innovations do not advance the ILECs' competitive position. This in turn reduces ILECs' incentives to innovate in those areas. The broader the scope of mandated wholesale access, the broader the scope of network components for which incentives to innovate may potentially be reduced.

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[60] In this regard, TELUS noted that it had delayed network investment decisions outside of its ILEC operating territories for over two years while it waited for the CRTC's decision in the competitor digital network access (CDNA) proceeding and that it had adjusted its business plans to purchase wholesale facilities from Bell Canada in Ontario and Quebec to a greater extent than it otherwise would have (see Telus' discussion of unbundling as part of its response to question B.17, in its August 15, 2005 submission to the Telecommunications Policy Review Panel, p. 158, available online at: **http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/vwapj/TELUS-Submission.doc/$FILE/TELUS-Submission.doc**). UTC Canada noted that its members compete with the ILECs' digital network access services and that the mandated wholesale rates established for the ILECs' CDNA service were up to 80 percent lower than the retail rates previously charged. UTC Canada indicated that this had a severely negative impact on its members' revenues (see UTC's August 15, 2005 submission to the Telecommunications Policy Review Panel, paragraph 75, p. 22, available online at: **http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/vwapj/UTC_Canada_-_Submission.pdf/$FILE/UTC_Canada_-_Submission.pdf**). Quebecor Media Inc. (QMI) also indicated that its subsidiary, Vidéotron Telecom Ltd. (VTL), had constructed new fibre access and transport facilities expressly to provide service to wholesale customers and that the low CDNA rates subsequently established by the CRTC had a significant negative financial impact on VTL. *Part VII Application to Review and Vary Competitor Digital Network Services, Telecom Decision CRTC 2005-6, 3 February 2005*, filed with the CRTC by QMI on July 29, 2005.

The Panel recognizes that a broader scope of mandated wholesale access may reduce barriers to entry in the markets for services or applications. This may result in more innovation at the service and applications layers by allowing for more market participants and by creating pressure for timely introduction of new technologies. However, these benefits may be outweighed by the dramatic reduction in competition at the physical and network layers. Further, in the longer run, innovation at the service or application layers may depend on capabilities and innovation at the physical or network layers and continuation of SMP at those levels may impede innovation at higher layers as well.[61] A broad scope of mandated wholesale access may thus undermine long-run opportunities and incentives for innovation at all levels.

Consequently, the Panel considers that, for maximization of incentives for innovation, network efficiency and investment in networks, reform of the Canadian regulatory framework governing mandated wholesale access is needed.

**Recommendation 3-19**

**The regulatory framework should continue to require owners of essential wholesale facilities to make them available to competitors at regulated wholesale rates. Regulatory requirements to provide non-essential wholesale services or facilities should be phased out in order to provide increased incentives for innovation, investment and more widespread construction of competing network facilities.**

### Review of Essential Services

To be considered "essential" under the current CRTC definition, a facility, function or service must meet three criteria:

- be monopoly-controlled
- be required by entrants as an input to provide services
- be economically or technically difficult for new entrants to duplicate.

Implementation of the Panel's recommendation of limiting the scope of mandated wholesale access to essential facilities requires a clear and operational definition of essential facilities.

Under the CRTC's current definition, determining whether a facility is required by entrants as an input or whether it can technically be duplicated is relatively straightforward. However, determining whether duplication is economically feasible is not straightforward for several reasons.

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[61] For example, the introduction of fibre optic transport systems very significantly cut down the noise affecting transmission of signals, and allowed new protocols at the application layer, such as frame relay, that were not encumbered by the same amount of error checking and correction as earlier protocols, such as X.25.

First, it may be economically feasible for an entrant to build its own facilities and ancillary services in some areas but not in others. The analysis will require a definition of markets with common economic, geographic or demographic conditions. The market definition will likely differ depending on the facilities involved. The Panel is concerned that the CRTC's analyses to date may have relied upon markets that are too broadly defined.

Second, it is not clear what criteria should be used to identify situations in which duplication of a facility is not economically feasible. Facilities that have natural monopoly characteristics certainly meet this test.[62] However, it is not clear whether other facilities may also qualify.

Third, addressing the economic feasibility of the duplication of a facility by entrants also requires explicit consideration of a time horizon over which duplication may be expected to occur.

The Panel believes the foregoing issues require further study.

Effectively addressing these matters requires the involvement of both the CRTC and the Competition Bureau. The working group of CRTC and Competition Bureau members, proposed in Recommendation 3-15 above, should examine the definition of essential facilities and its application.

**Recommendation 3-20**

**The *Telecommunications Act* should be amended**

**(a) to provide for the creation of a category of essential facilities, including ancillary services, that should be subject to a regime of mandated supply at regulated rates, and**

**(b) to establish a process whereby this category of services can be kept up-to-date.**

**Recommendation 3-21**

**A working group of CRTC and Competition Bureau members should be established as soon as possible to develop recommendations to the CRTC on the definition of essential facilities and its application to today's telecommunications networks.**

The set of facilities and related services that meet the essential facilities definition will not be static. Technological and market developments over time may result in a shift of facilities from essential to non-essential status.[63] It is conceivable, although less likely, that shifts may also occur in the other direction. In addition, new essential facilities may emerge. Today, for example, it is recognized that many support structures (such as poles and ducts), antenna towers and certain rights-of-way are essential facilities. In some cases, a significant requirement for these facilities has emerged only with the evolution of technology. As this process continues, other facilities, such as light standards, may also become essential. These issues are dealt with in Chapter 5, Technical Regulation.

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[62] A "natural monopoly" exists when the entire market demand can be served at the lowest aggregate cost by one supplier because of the nature of the economies of scale available, relative to total market size. Competition in such markets would likely be unsustainable in any case because of the economies available to the incumbent supplier.

[63] For example, ILEC local loops were declared essential in 1997 in some areas where cable companies are currently providing retail local telephone service using their own facilities, including facilities that are analogous to ILEC local loops.

**Recommendation 3-22**

**A regular review of the essential facilities category should be conducted at least every three to five years.**

Consistent with the principles set out in Chapter 2, Policy Objectives and Regulation, mandated wholesale access should be subject to economic regulation since, by definition, the provider of these facilities and services has SMP. Over time, the service provider's SMP over certain components of mandated wholesale access may erode. In such cases, the review of essential facilities should result in a reclassification of those components to non-essential.

### Transitional Arrangements

The Panel recognizes that, as a result of regulatory actions, many service providers have come to rely on the mandated wholesale access to non-essential services of the ILECs and, to a lesser extent, the cable industry. These service providers should be provided with a sufficient opportunity to adapt to the new environment recommended in this report.

Accordingly, there should be a transition period during which existing mandatory wholesale arrangements, including mandatory resale of retail services, should remain in place. The transition regime should apply to wholesale services provided by both ILECs and incumbent cable companies.[64] Parties should have the choice of negotiating alternative arrangements for provision of non-essential services during the transition period.

Following the transition period, only essential facilities and interconnection services (as discussed below) should remain subject to mandatory regulatory requirements.

**Recommendation 3-23**

**Existing mandatory wholesale arrangements, including mandatory resale of retail services, should remain in place during a transition period. The transition period should be three to five years for most non-essential services or facilities, with consideration given to a longer period for certain non-essential, co-location services because of their typically high, one-time costs. The transition arrangements should be developed by the working group of the CRTC and Competition Bureau.**

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[64] The CRTC has mandated the provision of Third Party Internet Access by certain cable companies at cost-based tariffed rates in order that other Internet service providers (ISPs) may offer retail high-speed Internet services to end-users using the cable company access network. In CRTC Order 2000-211, the CRTC indicated that "high-speed access is not in the nature of an essential service provided by both telecommunications carriers and cable network operators."

**Recommendation 3-24**

**Following the transition period for phasing out mandatory wholesale arrangements, only essential facilities and interconnection services should remain subject to mandatory access requirements and regulated pricing.**

### Regulation of Non-essential Wholesale Services

The Panel recommends restricting mandatory wholesale access requirements and regulated pricing to essential services, interconnection services and, during the transition period, existing non-essential arrangements. The availability and pricing of other wholesale arrangements should be left to market forces and commercial negotiations. The Panel considers that no valid purpose will be served by continued economic regulation of non-essential wholesale arrangements following the end of the transition period. However, as in the case of retail services, there remains the potential for anti-competitive conduct in the provision of non-essential wholesale services. The TCT should be empowered to deal with such complaints.

**Recommendation 3-25**

**(a) Tariff regulation should not apply to new, non-essential wholesale services, and should be removed from existing non-essential wholesale service arrangements, including the resale of regulated retail services, following a three-to-five-year transition period.**

**(b) The *Telecommunications Act* should be amended to require the filing of tariffs for wholesale services only for essential facilities and ancillary services and for interconnections services. Tariffs should be filed for existing non-essential facilities during the transition period to phase them out.**

**(c) The Governor-in-Council should issue a policy direction to the CRTC stating that regulating the availability and pricing of new, non-essential facilities and ancillary services is inconsistent with policy objectives set out in section 7 of the *Telecommunications Act*, particularly paragraphs (f) and (g).**[65]

In the Panel's view, the TCT should be responsible for dealing with allegations of anti-competitive conduct related to the provision of non-essential wholesale facilities, given its expertise in both competition and telecommunications matters. This matter is discussed further in Chapter 4.

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[65] These objectives of s. 7 state:

(f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;

(g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;

### Regulation of Interconnection Services

As noted above, the interconnection[66] of networks increases the number of users accessible from both networks and so increases the value of the network from the perspective of users of both interconnecting networks. In some cases, interconnection is also necessary to allow competitive entry and the introduction of competitive market forces. The interconnection of public networks can produce significant benefits for users and, more generally, greater efficiency of the whole economy.

The presence of the network externalities discussed above may result in an imbalance of bargaining power, particularly between incumbents and new entrants or between operators of large networks and operators of small networks. In cases in which interconnection is required for competitive entry, incumbents on balance may not stand to benefit from interconnection. As a result, two network operators may not always have an incentive to reach reasonable terms in a timely manner. Regulatory oversight may be required in these cases to ensure efficient interconnection and interoperability of networks on reasonable terms.

Where many interconnecting networks are potentially involved, the coordination and standardization that results from regulatory dispute resolution processes may also reduce the costs associated with negotiated arrangements, even in cases where all parties have an incentive to interconnect.

Consistent with the Panel's presumption in favour of reliance on market forces, regulatory intervention in new interconnection arrangements should occur only where there is a significant public interest in requiring the interconnection, and where market forces and commercial negotiations, of either a bilateral or multilateral nature, have not resulted or are unlikely to result in efficient interconnection and interoperability on reasonable terms and in a timely manner.

Where intervention is required, regulation should rely primarily on dispute resolution mechanisms to encourage the parties to come to an agreement. Only where such mechanisms are not likely to succeed should mandated interconnection tariffs be established.

Service providers have made significant investments and have configured their networks to conform to existing tariffed interconnection arrangements. Consequently, the CRTC should continue to regulate existing tariffed interconnection arrangements.

Currently, s. 29 of the *Telecommunications Act* specifies that Canadian carriers shall not, without the prior approval of the CRTC, give effect to any intercarrier agreement or arrangement. This should be revised to allow for commercial negotiation of such arrangements.

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[66] This report uses the term "interconnection" in the sense in which it is normally used in North America; that is, to include ancillary arrangements such as call termination and transit. This use of the term "interconnection" therefore encompasses arrangements that are considered "access" rather than "interconnection" arrangements in European and international parlance.

**Recommendation 3-26**

**Section 29 of the *Telecommunications Act* should be amended to give the CRTC clear authority to mandate interconnection arrangements and interoperability between all public networks when the CRTC is satisfied that**

**(a) there is a significant public interest in requiring the interconnection, and**

**(b) market forces and commercial negotiations are unlikely to result in efficient interconnection and interoperability on reasonable terms and in a timely manner.**

In the Panel's view, regulation of interconnection primarily involves sector-specific questions of telecommunications technology, service evolution, economics, industry practices and network architecture. These are areas of comparative CRTC expertise, and it should retain primary responsibility for telecommunications network interconnection arrangements. Interconnection may be ordered by the TCT or the Competition Tribunal as a partial or complete remedy to anti-competitive conduct. However, its implementation should be left to the CRTC.

**Recommendation 3-27**

**Primary responsibility for regulating interconnection, including resolution of interconnection disputes, should remain with the CRTC.**

### Pricing Issues

There is general agreement in Canada that prices for mandated wholesale access and regulated interconnection services should be cost-based, although there has been debate about the methods, assumptions and data sources used in arriving at the relevant causal costs.[67] The highly contentious nature of these debates has resulted in very lengthy delays in finalizing regulated prices.

As is the case in regulating services, errors in establishing regulated cost-based prices carry significant risks, even if such regulation is restricted to essential facilities and interconnection services. Prices for essential facilities that are too high may not be competitively neutral and may result in artificially high retail prices. Prices that are too low may reduce the likelihood that new technologies can become viable alternatives, thus artificially perpetuating the monopoly supply of essential facilities.

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[67] Ideally, Ramsey prices should be used for wholesale access and interconnection. However, these can become very complex, taking account, as they should, of demand relationships, technology and type of competition. In practice, the required information is not available. As well, the resulting prices may not be acceptable politically. As a result, the use of cost-based pricing is widespread throughout the world. For a discussion, see Ingo Vogelsang, "Price Regulation of Access to Telecommunications Networks," *Journal of Economic Literature* 41 (3) (2003): 833.

Establishing initial rates for essential facilities and interconnection services requires a well-developed costing capability. The difficulties in establishing reliable costing information and the consequences of error suggest that establishing prices based on cost estimates should be limited to new services. Once a cost-based price is established for an essential facility or interconnection service, the price should be kept up-to-date by application of a price cap mechanism that takes into account both inflation and productivity targets.

Given the importance of accurately determining initial prices under the Panel's proposal, a public review of the costing methodology used should be undertaken by the CRTC. The Panel notes that no comprehensive public review of the CRTC's Phase II incremental costing methodology has been conducted since it was first established in 1979. A review of costing systems and methodologies is long overdue.

**Recommendation 3-28**

**The CRTC should retain power to regulate the prices as well as other terms and conditions of wholesale access or interconnection where**

**(a) these have been mandated, or**

**(b) there is a dispute involving commercial access or interconnection.**

**Providers of mandated wholesale access or interconnection services should be obliged to file relevant tariffs with the CRTC.**

**Recommendation 3-29**

**The CRTC should undertake a public review of its incremental costing methodology as soon as possible.**

## The Role of Resale

### The Current Situation

The current regulatory framework governing facilities-based local competition[68] prevents local service resellers from becoming competitive local exchange carriers (CLECs) and so benefiting from the accompanying rights and obligations. This restriction is consistent with the CRTC's approach of promoting facilities-based competition. However, since a CLEC must be a Canadian carrier, foreign-owned resellers cannot become CLECs. This limits their participation in the local services market.

Resellers are not able to access the full set of rights available to CLECs:

- to obtain unbundled local loops, central office connecting links and co-location at mandated rates
- to obtain interconnection, exchange local exchange traffic on a bill and keep basis and share equally in the costs of interconnection
- to gain access to Canadian telephone number resources and the local number portability (LNP) database
- to receive subsidies when providing local exchange services to residential customers located in high-cost service areas (HCSA)
- to access buildings and in-building wiring.

Resellers can obtain access to some of these elements but generally must do so indirectly through a local exchange carrier (LEC).

Since 1997,[69] resellers operating in the long distance market have had mandated access to unbundled loops and connecting links for purposes of providing direct access lines (DALs) to their long distance service customers.[70] In 2000,[71] resellers who were also digital subscriber loop (DSL) service providers were granted the right to lease unbundled local loops, central office connecting links and co-location directly from the ILECs at mandated rates. This access has recently been extended for the provision of voice over Internet Protocol (VoIP) services, in addition to retail Internet access services.[72]

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[68] Established by the CRTC in Decision 97-8.

[69] Telecom Order CRTC 97-1818, 12 December, 1997.

[70] A DAL is, in effect, a private line facility running from the end customer premises to the entrant switch. A DAL was provided as an alternative means of accessing the long distance provider's service.

[71] Telecom Order CRTC 2000-983, 27 October, 2000.

[72] *Regulatory framework for voice communication services using Internet Protocol*, Telecom Decision CRTC 2005-28, 12 May 2005 (Decision 2005-28).

In addition to the rights available only to CLECs, there are also a number of obligations imposed:

- to provide 9-1-1 service and message relay service
- to implement number portability
- to provide equal access
- to provide subscriber listings to LECs
- to satisfy all regulatory requirements designed to protect consumer privacy
- to provide for reciprocal interconnection
- to interconnect with all LECs and with any long distance carriers and wireless service providers seeking interconnection
- to provide information on certain terms of service to customers.

Currently, the CRTC does not have direct authority over resellers under the *Telecommunications Act*, except in very limited circumstances, such as the context of contribution subsidy collection and the licensing of international telecommunications service providers. However, a number of these obligations are currently imposed on resellers providing local services indirectly through the underlying tariffs and agreements between the resellers and the LECs providing services to them.[73] The obligations currently imposed either directly or indirectly on local service resellers include the following:

- to pay contribution (direct)
- to provide 9-1-1 service and message relay service (indirect)
- to satisfy all regulatory requirements designed to protect consumer privacy (indirect)
- provide information on certain terms of service to customers (indirect).

Additional obligations regarding 9-1-1 service were imposed on resellers providing VoIP services.[74]

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[73] The Appendix to *Regulatory framework for voice communication services using Internet Protocol*, Telecom Public Notice CRTC 2004-2, 7 April 2004 sets out the regulatory framework and other attributes of local services competition and how they apply to ILECs/CLECs and local service resellers.

[74] *Emergency service obligations for local VoIP service providers*, Telecom Decision CRTC 2005-21, 4 April 2005.

### Competitive Local Exchange Carrier Rights and Obligations

Permitting local service resellers to avail themselves of all of the rights and obligations of CLECs may increase the scope of competition in the local services market. Resale remains a valid form of competitive entry which brings with it a number of benefits such as an increase in the number of competitors, improved supplier responsiveness, stimulation of product and service innovation, more rapid dissemination of the benefits of competition through the exploitation of arbitrage opportunities and more efficient capacity utilization.

As discussed in the preceding section on wholesale access, the Panel believes the regulatory framework should promote investment in competitive network facilities and avoid creating inefficient incentives for resale. However, barriers to efficient resale competition should be removed.

Extending the ability of local service resellers to compete in the local services market would expand the options for competitors to enter that market and remove artificial constraints on efficient entry decisions. This approach is also consistent with the greater emphasis that the Panel recommends placing on market forces.

Recently, the CRTC has extended the practice of indirect regulation to include local VoIP service providers. This extension of regulation was motivated by an important social objective to ensure that consumers of VoIP services had access to emergency services.[75]

The only significant one-sided CLEC obligation not already imposed on resellers is the requirement to provide equal access.[76] A principal goal of the new regulatory framework recommended in this report is competitive neutrality. In the Panel's view, there is considerable uncertainty about whether imposing new obligations on resellers without also providing access to substantially all of the benefits available to CLECs is competitively neutral.

**Recommendation 3-30**

**Resellers in the local telecommunications services market who choose to undertake all the obligations of a competitive local exchange carrier should have all the regulatory rights and obligations applicable to competitive local exchange carriers.**

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[75] In *Regulatory framework for voice communication services using Internet Protocol*, Telecom Decision 2005-28, the Commission imposed a number of obligations on VoIP service providers. Similarly, in *Follow-up to Emergency service obligations for local VoIP service providers, Decision 2005-21 — Customer notification requirements*, Telecom Decision CRTC 2005-61, 20 October 2005, which addressed the emergency service obligations for local VoIP service providers, the CRTC required all Canadian carriers to include in their contracts with these service providers the requirement that they abide by the directions set out in Decision 2005-61.

[76] The requirement to interconnect is an obligation not currently imposed on resellers but is currently imposed on the LEC providing the underlying services. In any case, the requirement to interconnect brings with it important benefits for resellers by providing access to potentially more favourable arrangements for the exchange of traffic.

### Implementation

Providing the CRTC with direct authority over resellers requires amendments to the *Telecommunications Act*. The issue of moving from indirect regulation of telecommunications service providers to direct regulation is addressed in Chapter 2, Policy Objectives and Regulation.

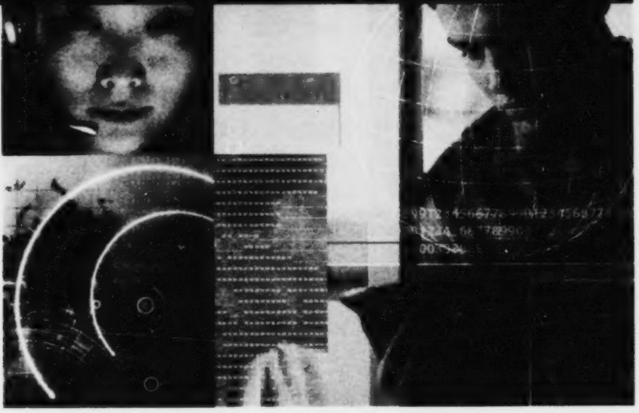
In advance of amendments to the *Telecommunications Act*, it may be possible to implement the above recommendation using the current indirect manner of regulating resellers.

This approach would permit resellers that choose to avail themselves of the rights and obligations associated with CLEC status to be indirectly regulated through the tariffs and agreements of LECs. The necessary interconnection arrangements between these resellers and other LECs could be handled directly through an "access tariff" included in the tariffs of all LECs. Reseller adherence to current standard-form interconnection arrangements between LECs and mobile service providers (MSPs), on the one hand, and LECs and long distance providers, on the other, could be imposed as a condition of access to interconnection with LECs.

# 4

# Chapter 4

# Telecommunications Competition Tribunal



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One of the major reforms proposed by the Panel in this report is elimination of the presumption of economic regulation that underpins the current telecommunications legislation in favour of a presumption of deregulation. As discussed in Chapters 2 and 3, this reform will result in significantly lighter economic regulation than the existing model.

As the regulatory framework transitions from an historic approach that seeks to protect consumers from monopoly pricing to one that relies on competitive market forces to discipline pricing, the focus of economic regulation shifts toward ensuring that competition is not thwarted or significantly diminished as a result of anti-competitive conduct by those who might possess significant market power (SMP). In this environment, there is greater reliance on competition law principles, rather than on traditional public utility regulation, to assess whether barriers to entry exist, whether SMP exists and whether there has been abuse of such SMP that has resulted — or is likely to result — in a significant lessening or prevention of competition in the market.

As this shift in regulatory focus occurs, it is important to consider the most appropriate institutional framework to define markets, assess market power, determine whether there has been an abuse of such SMP when it is found to exist, and determine whether such conduct has resulted in a significant lessening or prevention of competition. It is equally important to ensure that the institution granted this authority has an in-depth understanding of the telecommunications sector as well as the requisite powers and procedures to make determinations in a timely manner, to impose effective remedies when justified and to monitor compliance with its orders. The question that arises is whether the existing sector-specific regulator — the Canadian Radio-television and Telecommunications Commission (CRTC) — the competition law authorities — the Commissioner of Competition, the Competition Tribunal and the courts — or some new institution would be the most appropriate and effective body to assume this role.

Canada is not alone in considering these issues. In fact, as discussed further below, other countries have been active in reforming their institutional framework to better address this issue. As a result, Canada currently lags some of its major trading partners in creating new institutional frameworks to better respond to the changing regulatory environment. In considering this issue, the Panel has had the benefit of consultations with a number of regulators in Europe, the United States, Asia, Australia and New Zealand in addition to a significant number of submissions from Canadian regulators, academics and industry participants in the course of its public consultations.

## International Experience

In considering how best to capture the expertise of the competition authority and the telecommunications regulator, the Panel examined the approaches taken in a number of the member countries of the Organisation for Economic Co-operation and Development (OECD) that have addressed this issue.[1] A brief summary of some of the salient features of the approaches considered is set out below.

### The European Union

During the first half of this decade, telecommunications regulation in Europe has undergone a major overhaul under the direction of the European Union (EU). These reforms have significantly transformed the regulatory landscape in Europe, moving member states away from a patchwork of diverse regimes with an emphasis on detailed economic regulation toward a more harmonized system based on competition law principles. Under the new regime, there is a presumption in favour of deregulation. Sector-specific regulation must be justified on the basis of a common set of economic and social principles, and must be no more intrusive than is necessary to achieve these ends.

Member states of the European Community (EC) are required by the Treaty of Rome Establishing the European Economic Community (EC Treaty) to prohibit certain forms of anti-competitive conduct that affect trade between member states or that restrict or distort competition within the common market. These prohibitions, which are contained in Articles 81[2] and 82[3] of the EC Treaty, form the basis of EU competition law. Following a number of unsuccessful attempts to harmonize the approach to telecommunications regulation in Europe and the application of Articles 81 and 82 to that sector, the European Parliament and Council introduced a series

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[1] Various sources were referenced in drafting this section, including Olivier Boylaud and Guiseppe Nicoletti, "Regulation, Market Structure and Performance in Telecommunications," OECD Economic Studies No. 32, 2001/I (OECD Publishing, 2000) (available online at: **http://www.oecd.org/dataoecd/24/33/2736298.pdf**); "Telecoms and Media 2005, An Overview of Regulation in 47 Jurisdictions Worldwide," *Global Competition Review*, 6th ed., 2005; CRTC, Submission in response to the Telecommunications Policy Review Panel Consultation Paper, August 17, 2005 (available online at: **http://www.crtc.gc.ca/eng/publications/reports/t_review05.pdf**); Laurence J. E. Dunbar and Leslie J. Milton, "Comparative Study on Interaction between Competition Law Authorities and Telecommunications Regulators in Australia, the United Kingdom, Germany and the United States of America," Submission of the Competition Bureau in response to the Telecommunications Policy Review Panel Consultation Paper, August 12, 2005 (available online at: **http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/vwapj/Competition_Bureau_-_Appendix_A_(Comparative_Study).pdf/$FILE/Competition_Bureau_-_Appendix_A_(Comparative_Study).pdf**); and New Zealand, Ministerial Enquiry into Telecommunications, Final Report, September 27, 2000 (available online at: **http://www.teleinquiry.govt.nz/reports/final/final.pdf**).

[2] Section 81 addresses agreements between parties or concerted practices that have as their object or effect the prevention, restriction or distortion of competition within the common market. Available online at: **http://europa.eu.int/comm/competition/legislation/treaties/ec/art81_en.html**

[3] Section 82 addresses situations of abuse of dominance. It includes a list of practices that may constitute abuse, including:

- (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions
- (b) limiting production, markets or technical development to the prejudice of consumers
- (c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage
- (d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts.

Available online at: **http://europa.eu.int/comm/competition/legislation/treaties/ec/art82_en.html** of major new directives in 2003. One of these directives, known as the Framework Directive,[4] addresses the respective roles of competition law and sector-specific regulation in the new regime. The objectives of the Framework Directive are to harmonize regulation across Europe to reduce entry barriers in national markets and to foster development of effective competition both within domestic markets and across borders within the European Community.

As required by the Framework Directive, the European Commission issued a recommendation identifying some 18 retail and wholesale relevant product and service markets that it considers to be susceptible to *ex ante* regulation.[5] The EC also issued guidelines setting out the economic and competition law principles to be employed by national regulatory authorities (NRAs) in defining relevant markets and assessing market power in those markets.[6] The Framework Directive instructs member states to reduce sector-specific regulation so they address only those instances where it is warranted by the presence of SMP in relevant markets. Even when an NRA finds SMP to exist in a market segment defined by the European Commission, or defined by the NRA in accordance with the prescribed methodology, that fact alone does not necessarily justify sector-specific regulation.

The NRA is required to take a further step and determine that competition law alone does not adequately address the market failure in question. When sector-specific regulation is justified on this basis, the NRA must assess the regulatory options available and select the least intrusive option that will achieve the desired objective. In this environment, *ex ante* economic regulation is an option of last resort. When sector-specific regulation is not justified on this basis, generally applicable national and EU competition laws must be applied.

While the EU has determined that there is still a role for sector-specific regulation, it has structured that role to suit the state of competition in the market and to respond to social and other policy objectives that cannot readily be achieved by market forces. It has ordered that designated NRAs must define markets and apply competition law where SMP is not found to exist — but it has not dictated to member states which domestic regulators must make these determinations. This has left individual member states with the option of deciding which roles their domestic regulators will assume. This has resulted in different institutional approaches being taken in different member states. Two such approaches are briefly described below, followed by a review of other international approaches.

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[4] Directive 2002/21/EC of the European Parliament and of the Council, March 7, 2002. Available online at: **http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_201/l_20120020731en00370047.pdf**

[5] Commission Recommendation of February 11, 2003, on relevant product and service markets within the electronic communications sector susceptible to *ex ante* regulation in accordance with Directive 2002/21/EC of the European Parliament and Council on a common regulatory framework for electronic communications networks and service, 2003/311/EC, OJ L 114/45.

[6] Commission guidelines on market analysis and the assessment of significant market power under the Community regulatory framework for electronic networks and services, 2002/C 165/03, OJ C 165/6 (11.7.2002).

## Germany

The Regulatory Authority for Telecommunications and Posts (RegTP) has authority under the German *Telecommunications Act* to regulate rates for telecommunications services and address abusive practices by dominant telecommunications carriers.[7] The RegTP was already required to employ domestic competition law principles in defining relevant markets and assessing market power in the telecommunications sector prior to the issuance of the Framework Directive. However, as a result of the Framework Directive, it now must also ensure that its review is in compliance with the EC tests for defining markets and determining the existence of SMP. Since the RegTP has not been designated as the NRA in Germany responsible for administration and enforcement of EU competition law, it must turn to another German institution, the Federal Cartel Office (FCO), to perform this function.

The FCO is the federal competition authority in Germany with authority over cartels, abusive practices and mergers under the German *Act Against Restraints of Competition*. The FCO also has authority to enforce Articles 81 and 82 of the EC Treaty. In order to comply with the Framework Directive, the *Telecommunications Act* requires the RegTP to obtain the agreement of the FCO on decisions intended to address competitive distortions concerning the definition of telecommunications markets, the assessment of market power and the principles of frequency allocation. As a result, the RegTP and FCO cooperate throughout the course of any investigation by sharing information and consulting with each other to reach a consensus determination. The final draft of any RegTP decision is sent to the FCO for its formal consent. This close cooperation throughout the process minimizes the potential for disagreement between the RegTP and FCO and satisfies the institutional requirements of the Framework Directive.

## The United Kingdom

The United Kingdom has taken a different approach in implementing the Framework Directive. It has not maintained the traditional split in jurisdiction between the national competition authority (the Office of Fair Trading, or OFT) and the national communications regulator (the Office of Communications, or Ofcom), and has attempted to coordinate the relationship between the two regulators with respect to the enforcement of EU anti-trust law and communications policy. The U.K.'s approach has been to confer on Ofcom concurrent powers to administer competition laws with respect to the communications sector. This extends not only to the enforcement of Articles 81 and 82 of the EC Treaty and implementation of EC Communications Directives, but also to the enforcement of domestic competition law embodied in the *Competition Act, 1998*. Ofcom has been designated as an NRA for these purposes. However, Ofcom's powers do not extend to mergers or criminal behaviour under the *Enterprise Act, 2002*.

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[7] It has authority of technical regulation as well. Examples include such matters as frequency assignments, numbering and universal service. With respect to broadcast issues, the RegTP assigns radio frequencies to state media authorities who then assign the frequencies to broadcasters and address content issues. However, the states have no jurisdiction over telecommunications.

The U.K.'s approach to the jurisdictional issues raised by the EU's reforms is intended to foster consistency in regulation, provide regulated entities with access to a single regulator ("one-stop shopping") and avoid double jeopardy under U.K. and EU law.[8] In accordance with EC requirements, the *Communications Act, 2003* requires Ofcom to make a finding of SMP before imposing SMP regulatory conditions. In adopting this approach, the U.K. has avoided the difficulties of coordinating the activities between its two domestic regulators with respect to both the enforcement of EU competition law and communications policy as well as its domestic competition law.

Decisions by Ofcom that involve competition law interpretation and application under Articles 81 or 82, or under the *Competition Act, 1998*, are subject to appeal to the Competition Appeal Tribunal on both the substance of the decision and any penalties imposed. The Competition Appeal Tribunal is the same body that reviews decisions of the OFT. The U.K.'s use of the same tribunal is intended to ensure that a common appeal body reviews and interprets decisions regarding the application of competition law and policy by both the OFT and Ofcom, thereby ensuring application of the same standards and rigour to all industry sectors.

The U.K. recognizes that conferring concurrent jurisdiction on two regulatory bodies could give rise to confusion over which body has jurisdiction in a particular case. This issue has been addressed by putting in place "concurrency regulations" that require consultation between the regulators whenever they receive an application that raises competition law issues in the telecommunications sector. The concurrency regulations have been supplemented by a letter of agreement between the regulators that for practical purposes confers jurisdiction on the sector-specific regulator, Ofcom, in cases primarily involving the communications sector.[9]

### The United States

The United States has a long history of conferring concurrent anti-trust[10] enforcement powers on its telecommunications sector regulator, the Federal Communications Commission (FCC),[11] and its anti-trust authorities. It also has a long history of informal consultation between these anti-trust authorities and the FCC.

In the United States, there are two principal statutes dealing with federal communications regulation and three principal statutes that address anti-trust enforcement. The *Communications Act* of 1934 establishes the regulatory framework for interstate and international communications, including common carrier, broadcasting/radio, and cable regulation. Section 601(b)(1) of *The*

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[8] U.K. Department of Trade and Industry, *Our Competition Future: Building the Knowledge Driven Economy*, 1998. Available online at: **http://www.dti.gov.uk/comp/competitive/pdfs/es_pdf1.pdf**

[9] *Competition Act* 1998 (Concurrency) Regulations 2004, SI 2000/260. Available online at: **http://www.opsi.gov.uk/si/si2004/20041077.htm**

[10] In the U.S. and some other countries, competition law referred to as "anti-trust" law.

[11] The FCC is the federal communications regulator in the U.S. with the authority to enforce the *Communications Act* of 1934.

*Telecommunications Act* of 1996 contains an "anti-trust saving clause" that expressly provides that nothing in the Act "shall modify, impair, or supersede the applicability of any of the antitrust laws." The *Sherman Act*, the *Clayton Act* and the *Federal Trade and Commerce Act* set out the general laws regarding anti-trust enforcement. Three different bodies have jurisdiction to enforce these Acts: the FCC, the Anti-Trust Division of the Department of Justice (USDOJ), and the Federal Trade Commission (FTC).[12] With respect to anti-trust and telecommunications, the FCC also has authority to enforce the *Clayton Act* provisions, including the merger provisions, in respect of common carriers engaged in wireline or radio communications.

Under s. 271 of the *Communications Act* of 1934, the FCC was required to consult with the USDOJ and accord "substantial weight" to the USDOJ's analysis before finding that a regional Bell operating company's (RBOC) local markets were sufficiently open to competition that it should be permitted to enter the long distance market. Section 271 now is essentially of historical significance since all of the RBOCs have been granted approval to provide long distance services under the section. However, the "substantial weight" threshold is an important concept. It is interpreted as meaning that although the USDOJ's position was not conclusive, the FCC had to consider the USDOJ views and, if it rejected those views, explain the basis for the rejection in its decision. In other matters before the FCC, the USDOJ has the right to file comments in any FCC proceeding.

As noted above, both the FCC and USDOJ investigate mergers of communications entities. There are no formal consultation requirements. Typically, however, the FCC and USDOJ are in contact with each other early in an investigation at the staff level and discuss issues of common concern. Cooperation and consistency in the competition analysis by both the FCC and the USDOJ are fostered by the FCC's use of the USDOJ guidelines for assessing markets and market power, the timelines established for FCC and USDOJ assessment of mergers and the right of the USDOJ to appear and make submissions in any appeal of an FCC decision.

For example, with respect to a merger file, the FCC typically takes longer to review a merger than the USDOJ. As a result, it has the benefit of the USDOJ's analysis and decision in its deliberations and typically avoids inconsistent assessment of markets and market power. Also, if the USDOJ imposes conditions on a merger (through a consent decree), the application before the FCC will need to be modified to reflect the USDOJ terms. The FCC acts on the modified application and, if necessary, imposes additional conditions on its approval.

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[12] Both the USDOJ and the FTC have a general anti-trust mandate that is governed by the provisions of the *Sherman Act*, the *Clayton Act* and, in the case of the FTC, the *FTC Act*. Common carriers that are subject to the *Communications Act* of 1934 are expressly excluded from the FTC's jurisdiction to prevent persons and corporations from engaging in unfair methods of competition or unfair or deceptive practices under the *FTC Act*. The FTC does have jurisdiction under these statutes to review non-common carrier matters including, for example, cable and broadcasting issues.

## Australia

In 1997, the Commonwealth Government of Australia extensively reformed its competition and telecommunications legislation and undertook a restructuring of its regulatory institutions. This restructuring resulted in the redistribution of economic regulatory functions, previously exercised by a telecommunications industry-specific regulator (AUSTEL), to the Australian Competition and Consumer Commission (ACCC), which also has responsibility for competition law enforcement and consumer protection. At the same time, AUSTEL's responsibility for "technical regulation" was transferred to a new agency called the Australian Communications Authority (ACA). In 2005, the ACA was merged with the Australian Broadcasting Authority (ABA) to form the Australian Communications and Media Authority (ACMA).

The restructuring of Australia's telecommunications regulatory institutions was driven by a number of factors, including a desire to deliver consistency in regulation across various sectors of the economy, to produce administrative savings by pooling skills and providing predictability in regulation across sectors, to lessen the risk of "regulatory capture" of a sector-specific regulator that maintains close contact with the entities it regulates, and to inject a more "pro-competitive culture" into the regulatory process.[13]

While the restructuring process resulted in the economic regulation of the telecommunications sector and general competition regulation being brought together under the unified jurisdiction of the ACCC, it did not result in the elimination of economic regulation or a simplistic application of competition laws of general application to the telecommunications sector. Rather, the approach taken was to add to the primary statute governing competition regulation (the *Trade Practices Act*) two new telecommunications-specific chapters dealing with anti-competitive conduct in the telecommunications sector (Part XIB) and with regulated access to telecommunications carriage services (Part XIC). The ACCC has established a separate regulatory division to administer its telecommunications regulatory functions. The division that is responsible for economic regulation of the telecommunications sector has the ability to exercise both *ex ante* and *ex post* regulatory powers.

The other general provisions of the *Trade Practices Act* continue to apply to the telecommunications sector. However, in practice, the industry-specific provisions in Parts XIB and XIC of the Act are applied in respect of issues affecting anti-competitive conduct or access to facilities or services in the telecommunications sector and price regulation.

This division of responsibility between the ACCC and the ACMA has resulted in a number of intersecting areas of jurisdiction, which are addressed through mandatory consultation between the agencies. Consistency in approach is also assisted by the cross-appointment of an ACCC Commissioner on the ACMA and an ACMA Commissioner on the ACCC.

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[13] Independent Committee of Inquiry, National Competition Policy, August 1999, chapter 14.

## New Zealand

New Zealand is the only OECD country that experimented with total reliance on its general competition law (the *Commerce Act*) rather than sector-specific regulation for addressing issues in the telecommunications sector. This experiment followed New Zealand's decision to deregulate much of its economy in the late 1980s. It is well recognized that this approach proved to be a failure, as it was too slow and ineffective to deal with key issues that required resolution for development of telecommunications markets such as interconnection conditions and rates for access to local loops.[14]

In 2001, the New Zealand government abandoned this approach and introduced a new *Telecommunications Act*, which contains provisions for the sector-specific regulation of the telecommunications market. While the new regime retains the practice of applying general competition law provisions to the telecommunications sector, it also creates a new Telecommunications Commissioner with authority to address a number of telecommunications regulatory issues using sector-specific powers. The commissioner has jurisdiction to regulate interconnection, resolve access disputes, establish service obligations, establish costing and accounting mechanisms, set rates and establish a contribution regime. The commissioner also has a degree of control over certain potential anti-competitive conduct. In addition, the commissioner has the power to regulate new services under certain circumstances. All other issues regarding the application of the general competition law, including review of abuse of dominance and mergers, remain under the jurisdiction of the *Commerce Act* and the *Fair Trading Act* and are enforced by the commerce commission.

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[14] For a more detailed discussion of this issue, see CRTC, Submission in response to the Telecommunications Policy Review Panel Consultation Paper, August 17, 2005, paragraphs 157–160. Available online at: **http://www.crtc.gc.ca/eng/publications/reports/t_review05.pdf**

## Lessons from International Experience

The following table summarizes the international experience discussed above.

Table 4-1 Telecommunications Regulation 2005

| | | | | Interconnection | | Other regulation | |
|---|---|---|---|---|---|---|---|
| **Country** | **Regulatory institution** | **Approval of merger** | **Review of anti-competitive conduct** | **Authorization of charges of operators with SMP** | **Dispute resolution** | **Pricing** | **Service quality** |
| **Australia** | • Telecom technical regulator | | | | | | X |
| | • Competition authority with sector-specific division applying sector-specific legislation | X | X | X | X | X | |
| **Canada** | • Minister (spectrum regulation) | X | | | | | |
| | • Telecom regulator | | X | X | X | X | X |
| | • Competition authority | X | X | | | | |
| **Germany** | • Telecom regulator | | X | X | X | X | |
| | • Competition authority | X | X | | | | |
| **New Zealand** | • Ministry (Kiwi share obligation) | | | | | X | X |
| | • Telecom regulator operating within competition authority, but applying sector-specific legislation | | X | X | X | X | X |
| | • Competition authority | X | X | | | | |
| **United Kingdom** | • Telecom regulator | | X | X | X | X | X |
| | • Competition authority | X | | | | | |
| **United States** | • Telecom regulator | X | X | X | X | X | X |
| | • Competition authority | X | X | | | | |
| | • Other (state level) | | | X (intra-state only) | X (intra-state only) | | |

Source: See footnote 1.

The Panel's review of experience in other countries has led it to reach the following conclusions regarding the interface between competition law and sector-specific telecommunications regulation:

- In both regulated and unregulated markets, many of Canada's major trading partners have taken steps to place much greater reliance on conventional competition theory in their telecommunications legislation, rather than continuing to rely on "public utility policy" or "common carrier regulation." Canada's current regime is becoming more of an exception to the norm applied by its major trading partners.
- Most OECD countries continue to rely on some form of sector-specific regulation in the telecommunications sector. New Zealand is the only OECD country to experiment with relying solely on competition law, and this approach has proved to be a failure.
- Other countries have developed better mechanisms than Canada for coordination of their anti-trust and telecommunications regulatory activities and for the integration of competition law principles into their sector-specific regimes.
- The United Kingdom, Australia and New Zealand have recently reformed their regulatory institutions in an effort to inject more rigorous competition law analysis into their sector-specific regulation. Although the approaches in each jurisdiction are quite different, each of the new institutions or divisions has a different mandate from that of traditional competition authorities, one that is tailored to the requirements of the telecommunications sector.

## A New Canadian Approach

In considering Canada's requirements, the Panel believes the government authority that deals with competition issues in the telecommunications sector should have the following attributes:

- strong sector-specific knowledge, including technical knowledge of the telecommunications industry
- strong background in economic analysis and competition law principles
- quasi-judicial structure
- expertise in conducting public hearings, including expedited proceedings
- ability to impose a wide range of behavioural remedies
- ability to monitor or supervise behavioural remedies
- ability to impose fines or order divestiture.

There are a number of options for the future Canadian institutional framework, many of which have been proposed in submissions to the Panel during its public consultations. They include:

- amending the *Telecommunications Act* to empower the CRTC to apply competition law
- amending the *Competition Act* to better equip the Commissioner of Competition and the Competition Tribunal to carry out these functions
- enabling the CRTC to consult with the Competition Bureau when considering competition issues
- enabling the Competition Bureau to consult with the CRTC when considering telecommunications issues
- enhancing the weight given to submissions presented by the Commissioner of Competition to the CRTC on competition-related issues
- appointing the Commissioner of Competition or another person with competition law experience to sit on the CRTC in respect of competition issues
- establishing a new specialized tribunal to consider competition issues arising in the telecommunications sector.

The Panel is not convinced that its concerns will be met by simply amending the *Telecommunications Act* to empower the CRTC to apply competition law principles to competitive telecommunications issues on a broader basis than it currently does.[15] The CRTC clearly has a high degree of sector-specific knowledge and is well-equipped as a quasi-judicial tribunal to conduct proceedings as well as impose and monitor behavioural remedies. However, there is a fairly strongly held view in the industry that the CRTC does not rigorously apply competition law principles in adjudicating complaints of anti-competitive conduct. The CRTC's long history of economic regulation based on the jurisprudence of public utility and common carrier regulation makes it hard for the CRTC to make the shift away from a presumption of regulation to an approach more oriented toward competition law.

This regulatory tradition in many ways defines the CRTC's current approach to issues of competitive safeguards and abuse of dominance. It has led to an environment in which the CRTC has adopted competition law tests for defining markets and assessing market power in forbearance proceedings, but has pursued a public policy approach to competition issues in other contexts. Its approach has been to engage in a "balancing of interests," rather than an economic analysis of market power. This results in a tendency to micro-manage competitive market behaviour in order to influence competitive outcomes, rather than to seek less intrusive remedies. This has led to uncertainty in results and a lack of rigour in economic analysis. In the Panel's view, this approach to regulation is unlikely to change by simply amending the governing legislation. This problem is exacerbated by the fact that the CRTC lacks the depth of expertise resident in the Competition Bureau to apply competition law principles in a rigorous manner to issues of market definition and assessment of SMP.

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[15] The CRTC's current use of competition law principles appears limited to its application of the forbearance tests in s. 34 of the *Telecommunications Act*.

At the same time, while the Competition Bureau has a higher level of expertise in defining markets and assessing market power than does the CRTC, the Panel is not satisfied that the *Competition Act* provides an appropriate framework for the resolution of competitive disputes in the telecommunications sector where SMP still exists or where markets are in transition from SMP. Nor does it provide an appropriate framework in situations where the development, ongoing monitoring and supervision of sector-specific competitive safeguards may be required. As a body with responsibility for administering Canada's competition laws in all sectors of the Canadian economy, the Competition Bureau clearly lacks the degree of sector-specific knowledge possessed by the CRTC.

In addition, the Competition Bureau is constituted as an enforcement agency rather than as a quasi-judicial body. Its process does not allow for the timely resolution of disputes that routinely arise in the dynamic and rapidly changing telecommunications sector. The *Competition Act* has constituted the Competition Bureau as an investigative body that investigates and reviews complaints of anti-competitive conduct. It then decides whether there is sufficient evidence to pursue either civil or criminal proceedings before the Competition Tribunal or the courts. This two-stage process involves significant time lags, sometimes measured in years, between the lodging of complaints and the resolution of issues. This lengthy process is not well suited to an environment in which competitive disputes arise on a fairly frequent basis and require prompt resolution. In addition, the Competition Tribunal does not view itself as a regulator that monitors behavioural remedies on an ongoing basis.

While it is arguable that these shortcomings of the *Competition Act* regime could equally apply to other sectors of the economy, other sectors do not share the same attributes as the telecommunications sector. Chapter 3, Economic Regulation, describes some of the specific economic and technical conditions of telecommunications markets. As discussed elsewhere in this report, telecommunications is widely regarded as an enabling technology that is vital to both the social and economic well-being of Canadians. Governments, businesses, individuals, educational institutions, hospitals and emergency services all depend on an efficient and technically advanced telecommunications infrastructure. If the recommendations in this report are adopted, there will be significantly lighter regulation in the Canadian telecommunications sector than there has been in the past. In this new environment, it will be important to have the capability to address allegations of anti-competitive conduct in a timely and effective manner.

These factors have led the Panel to consider a number of other institutional and procedural approaches adopted in other OECD countries that share Canada's legal and regulatory traditions.

At the present time, the Commissioner of Competition is empowered to present submissions to the CRTC in public proceedings that raise competition issues under s. 125 of the *Competition Act.* This has led some participants in the Panel's consultations to propose a requirement for the CRTC to give greater weight to such submissions and explain why it is deviating from the Commissioner of Competition's analysis, if it decides not to adopt it. This is somewhat similar to the mechanism adopted in the United States in respect of USDOJ submissions regarding RBOC entry into long distance markets. While giving greater weight to submissions of the Competition Commissioner may improve the quality of the CRTC's analysis of competition issues, it may not necessarily result in the type of rigour the Panel believes should apply to decisions respecting deregulation or the abuse of market power, since it does not entail participation in the decision-making process by the competition law experts.

In addition, other parties in the CRTC's public proceedings might justifiably ask why their submissions were given less weight than those of the Competition Commissioner. One of the strengths of the CRTC's process is its open public hearing process. This strength would be undermined if one party's submissions were to be given greater weight, no matter how compelling the submissions of opposing parties.

The Panel also considered recommending the appointment of a commissioner with competition law expertise as one of several commissioners at the CRTC, as is done in Australia. However, this approach is unlikely to ensure a fundamental change in approach by the CRTC and is unlikely to improve the level of competition law analysis at the CRTC staff level.

In considering the available options, the Panel has also been aware of the need to preserve the CRTC's status as a quasi-judicial body. *Ex parte* consultations between agencies may be appropriate in jurisdictions where communications regulation is conducted to a greater extent on an administrative level. However, it is inappropriate in a country such as Canada where the regulator is constituted as a quasi-judicial body and proceedings are conducted by means of an open and transparent public process. In the Panel's view, the legitimacy of regulatory proceedings before the CRTC may also be undermined if the CRTC is required to reach agreement with the Commissioner of Competition prior to rendering a decision. Thus, the German model is not compatible with the Canadian legal and institutional framework.

These considerations have led the Panel to conclude that the best way forward is to combine the competition law expertise of the Competition Bureau and the sector-specific knowledge of the CRTC in a new hybrid tribunal with jurisdiction to make decisions on telecommunications matters involving significant competition policy issues. This approach would combine the expertise of these two agencies while maintaining the strengths of a public quasi-judicial process and the ability to act expeditiously in addressing sector-specific issues.

### Establishment of a Telecommunications Competition Tribunal

The telecommunications industry is particularly complex, and the network infrastructure it utilizes is quite different from that in other sectors of the economy. The industry is evolving very quickly, both technologically and from the point of view of market dynamics. The Panel believes proper consideration of anti-competitive conduct in telecommunications markets can benefit from:

- expertise in the economics of industrial organization and its application to telecommunications issues
- detailed knowledge of the telecommunications industry.

It is for this reason that the Panel proposes the creation of a Telecommunications Competition Tribunal (TCT), a new type of "joint panel" that will draw upon resources of both the Competition Bureau and the CRTC.

The TCT would have both investigative and adjudicative functions. As a result, the process of considering complaints should be considerably expedited compared with the two-stage process followed by the Competition Bureau and the Competition Tribunal.

In the Panel's view, complaints of anti-competitive conduct in all telecommunications markets, whether or not subject to economic regulation, should go to the TCT rather than to the CRTC, the Competition Bureau or the Competition Tribunal. This would include telecommunications services that have already been forborne by the CRTC and that may be subject currently to the jurisdiction of the Competition Bureau and Competition Tribunal. In particular, complaints of anti-competitive conduct as they affect long distance services, mobile services and Internet access services, whether dial-up or high-speed, would be heard by the TCT.

As an exception, terminal equipment and related services would remain under the jurisdiction of the Competition Bureau and Competition Tribunal. In the Panel's view, terminal equipment does not share the complex features characteristic of telecommunications networks and so does not require special treatment of complaints of anti-competitive conduct.

The TCT will be a transitional regulatory mechanism designed for the specific purpose of guiding the telecommunications industry through the next stage of its evolution from sector-specific economic regulation, characterized by less *ex ante* price regulation and greater reliance on competition law principles, to regulation that is subject to the laws of general application including the *Competition Act*. The *Telecommunications Act* should include a sunset provision terminating the TCT at the end of five years, unless there continues to be significant market power in a substantial number of telecommunications markets.

The role of the TCT should therefore be reviewed as part of the more complete review of the telecommunications policy and regulatory framework in five years, which the Panel has recommended in Chapter 9. If technology and market forces continue to evolve as they have over the past few years, it is anticipated that many of the remaining markets can be deregulated over the next five years.[16] At that time, competition in telecommunications markets may have intensified to the point where review of complaints of anti-competitive conduct can be moved from the TCT to the Competition Bureau and Competition Tribunal.

**Recommendation 4-1**

**A new Telecommunications Competition Tribunal should be established operating as a type of "joint panel" of the CRTC and the Competition Bureau to address competition issues in the telecommunications sector.**

**Recommendation 4-2**

**The Telecommunications Competition Tribunal should be a transitional regulatory mechanism. Its mandate should terminate after five years, unless there continues to be significant market power in a substantial number of telecom markets.**

The tribunal should have three members:

- the Vice Chair, Telecommunications of the CRTC or another CRTC commissioner appointed by the CRTC
- the Commissioner of Competition or one of the Competition Bureau's senior staff appointed by the Commissioner
- a third member to be appointed by the Governor-in-Council in accordance with the new recruitment and selection process recommended in Chapter 9 of this report for CRTC telecommunications commissioners.

To balance the perspectives brought by the representatives of the CRTC and the Competition Bureau to this new tribunal, the member appointed by the Governor-in-Council should act as chair of the TCT. Since the chair will not be encumbered with other duties at the CRTC or the Competition Bureau, he or she will also be better positioned to devote time to administration of the new tribunal. The TCT should make its decisions on the basis of a simple majority, with each of the three members being accorded a single vote. Members of the TCT should be appointed for a three- to five-year term, with the possibility of extension or reappointment.

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[16] Such a process of deregulation would be expedited if cable and wireless networks continue to provide competitive alternatives to incumbent local exchange carriers networks in progressively smaller markets.

**Recommendation 4-3**

**The Telecommunications Competition Tribunal should be comprised of three members as follows:**

**(a) the Vice Chair, Telecommunications of the CRTC or another CRTC commissioner appointed by the CRTC,**

**(b) the Commissioner of Competition or one of the Competition Bureau's senior staff appointed by the Commissioner, and**

**(c) a third member to be appointed by the Governor-in-Council in accordance with the new recruitment and selection process for new CRTC telecommunications commissioners as recommended in Chapter 9.**

**Recommendation 4-4**

**The Governor-in-Council's appointee to the Telecommunications Competition Tribunal should act as its chair.**

**Recommendation 4-5**

**Each member of the Telecommunications Competition Tribunal should have one vote, and decisions should be made by a majority of votes.**

The Panel recommends constituting the TCT as an independent, quasi-judicial tribunal empowered to make independent rulings on matters within its jurisdiction. These decisions would have the same force and effect as CRTC decisions or orders. The TCT should also be subject to the same statutory policy objectives and regulatory principles as the CRTC under the *Telecommunications Act*. Since the TCT will be considering competition issues in the telecommunications sector, it is important for it to have the flexibility to apply all *Telecommunications Act* powers available to the CRTC and all *Competition Act* powers available to the Competition Tribunal in civil cases, including the power to order divestiture in appropriate cases.

This type of specialized tribunal, operating as part of a broader regulatory scheme, is not without precedent in Canada. For example, the former *National Transportation Act* made extensive use of committees. While these committees' purposes and functions were quite different from those of the proposed TCT, there are some useful points of comparison.

Section 24 of the former *National Transportation Act* established five separate committees of the Canadian Transportation Commission (CTC) to regulate five different sectors covering rail, air, water and motor vehicle transport as well as commodity pipelines. The Act empowered the CTC to appoint commissioners from among its members to sit on the committees and to appoint a chair of each committee from among them. The committee chair was accorded the same powers as the president of the CTC in respect of matters within the jurisdiction of the committee in question. Subsection 23.(3) of the former Act authorized the committees to exercise all of the powers of the Commission, and the orders, rules or decisions of the committee were accorded the same effect as though they had been made or issued by the full Commission.

One of the committees established by this legislation, the commodity pipeline transport committee, had jurisdiction over pipelines other than those used solely for carrying oil or gas, which fell subject to the jurisdiction of the National Energy Board. However, when a combined pipeline was used for purposes of transporting gas or oil and another commodity, para. 32.(3)(a) of the Act stipulated that it would be heard jointly by the National Energy Board and the Canadian Transportation Commission. In practice, this was accomplished by having both institutions appoint a commissioner to a panel that jointly heard the application. This type of tribunal, with members appointed by two different agencies, has some parallels with the proposed TCT.

There are other precedents in Canada for the cross-appointment of members of one agency or tribunal to sit on another such body. For example, ss. 6.(2) of the *Northern Pipeline Act* empowers the Governor-in-Council to "designate one of the members of the National Energy Board to be the administrator of the Northern Pipeline Agency. Section 3 of the *Competition Tribunal Act* requires the Governor-in-Council to appoint both judges of the Federal Court and lay members to sit on the Competition Tribunal.

The Panel believes the approach it is recommending will achieve the objectives of importing the Competition Bureau's expertise in competition policy, as applied in the general economy and in other countries, into the sector-specific regulatory framework applicable to telecommunications. Such a hybrid tribunal should be well suited to resolve competitive disputes in the telecommunications sector and to monitor any remedies imposed.

**Recommendation 4-6**

**The Telecommunications Competition Tribunal should be constituted as an independent quasi-judicial regulatory authority empowered to make rulings on matters within its jurisdiction that have the same force and effect as CRTC decisions or orders.**

**Recommendation 4-7**

**The Telecommunications Competition Tribunal should have all *Telecommunications Act* powers available to the CRTC and all *Competition Act* powers available to the Competition Tribunal in civil cases.**

While the Panel is recommending a TCT constituted as an independent tribunal, it proposes housing the TCT within the CRTC and drawing on the CRTC's administrative resources. Consistent with the goal of harnessing the combined expertise resident within the CRTC and the Competition Bureau to address competition issues in the telecommunications sector, the TCT should be jointly staffed to the greatest extent possible with personnel from the Competition Bureau and the CRTC. The Panel envisages that the TCT will make its requirements for staff known to the CRTC and the Competition Bureau from time to time, depending on its workload and the types of issues with which it deals. Personnel with the relevant expertise will be assigned by both authorities to support the TCT in carrying out its duties.

The assigned CRTC and Competition Bureau staff should operate under the supervision of the TCT while working for it, but should remain employed by their host institution. In addition to being able to call on these shared resources of the CRTC and the Competition Bureau, the TCT should be empowered to hire an executive director and several senior managers with competition law, economics, telecommunications and engineering skills. The TCT should also have a dedicated administrative staff to support the processing of applications, the organization of hearings and the smooth running of the tribunal.

In the Panel's view, this approach will meet the objective of combining the existing resources of the CRTC and the Competition Bureau in a new quasi-judicial body with all of the flexibility required to satisfy its mandate. The Panel believes the TCT can be established in a cost-effective manner with a minimal number of new positions being created. To the extent that functions assigned to the TCT were formerly assigned to the CRTC, there should be at least a partial offsetting reduction in the CRTC's workload and staffing requirements. It will, however, be important to provide funding for additional personnel positions at the Competition Bureau to accommodate the increased demand on resources created by the TCT.

**Recommendation 4-8**

**The Telecommunications Competition Tribunal should be staffed, to the greatest extent possible, by employees of the CRTC and the Competition Bureau. The CRTC and the Commissioner of Competition should be directed to assign personnel with the appropriate expertise to work under the direction of the Telecommunications Competition Tribunal in support of its mandate, as required by the Telecommunications Competition Tribunal from time to time.**

**Recommendation 4-9**

**The Telecommunications Competition Tribunal should also be empowered to retain a small secretariat of managers and support staff to carry out its functions.**

There is a risk that a hybrid tribunal such as the TCT, which relies on resources of two other institutions, may run into resource conflicts. In addition, there may be cases requiring specialized expertise not available within the CRTC or the Competition Bureau. To ensure that the TCT has access on a timely basis to the type of expert advice required, the TCT should be empowered to retain advisers on an *ad hoc* contractual basis. This authority is analogous to the power granted to the Commissioner of Competition in s. 25–27 of the *Competition Act* and similar to the power proposed for the CRTC in Chapter 9 of this report.

**Recommendation 4-10**

**The Telecommunications Competition Tribunal should be granted clear authority and sufficient budget to retain outside expert consultants at market rates when required to provide specialized expertise or to meet heavy workload requirements.**

In order for the TCT to make full use of the expertise of the Competition Bureau and the CRTC, the Panel recommends allowing Competition Bureau and CRTC staff assigned to work with the TCT to share information with staff at the Competition Bureau and the CRTC, respectively, including the Commissioner of Competition, his or her deputies and CRTC telecommunications commissioners. To the extent such information is filed in confidence with the TCT, provisions should be put in place to extend this protection to confidential information imparted to Competition Bureau or CRTC officials.

**Recommendation 4-11**

**Personnel assigned by the Commissioner of Competition or the CRTC to support the Telecommunications Competition Tribunal should have access to confidential information filed with it and should be permitted to share such information with other officials at the Competition Bureau or the CRTC to the extent necessary to perform their duties at the Telecommunications Competition Tribunal. Where information is filed in confidence with the Telecommunications Competition Tribunal and the claim for confidentiality is accepted by the Telecommunications Competition Tribunal, protection should be extended to any disclosure of the information to other officials of the Competition Bureau or the CRTC.**

Bill C-73, which was given first reading on November 14, 2005, but which died with the dissolution of Parliament, proposed amendments to the *Telecommunications Act* that would have allowed greater sharing of confidential information between the CRTC and the Competition Bureau. The Panel supports this initiative and recommends accelerating and expanding it to work bilaterally. In the Panel's view, there should be greater opportunities for two-way sharing of expertise between the Bureau and the CRTC, as well as between both institutions and the TCT.

The Bureau could benefit from the industry knowledge and technical expertise of the CRTC when the Bureau is considering mergers or criminal complaints involving analysis of the telecommunications market. Consistent with the approach taken in other jurisdictions to share information between anti-trust and telecommunications regulatory agencies, the Panel recommends that the Commissioner of Competition should be empowered to request assistance from the CRTC and should be empowered to share relevant confidential information for such purposes with any CRTC personnel assigned to assist in the Bureau's investigation, subject to appropriate safeguards. Similarly, the CRTC and the TCT should be required to share relevant confidential information with the Bureau, subject to appropriate safeguards.

Consequential amendments to s. 29 of the *Competition Act* will be required to enable the Commissioner of Competition to share confidential information with the CRTC and to share personnel resources with the TCT. Consequential amendments will also be required to the *Telecommunications Act* to enable the CRTC to share confidential information with the Competition Bureau and to share personnel resources with the TCT.

**Recommendation 4-12**

**Upon request by the Commissioner of Competition in the course of an investigation under the *Competition Act* involving the telecommunications sector, the CRTC or the Telecommunications Competition Tribunal should be required to provide assistance to the Competition Bureau in the form of personnel (subject to resource constraints) and to provide any information in their possession that may assist in the investigation or market analysis.**

In the Panel's view, the TCT's activities should be financed in the same way as the CRTC's activities; that is, by means of an industry levy pursuant to the Telecommunications Fees Regulations. The CRTC's annual expenses should be combined with the TCT's annual expenses and should be recovered through the Telecommunications Fees Regulations.

It should be noted that the Panel recommends other changes to the Telecommunications Fees Regulations in Chapter 9 of this report that involve a broadening of the contribution base beyond carriers with tariffed services and a new mechanism for collecting fees.

**Recommendation 4-13**

**The Telecommunications Fees Regulations should be amended to provide for recovery of the Telecommunications Competition Tribunal's annual operating expenses from the telecommunications industry.**

## Jurisdiction of the TCT and Application of Competition Law Principles

As discussed in Chapter 2, one of the policy objectives included in the *Telecommunications Act* is the enhancement of the competitiveness of Canadian telecommunications at the national and international levels. This policy objective is intended to provide the CRTC with direction on Parliament's desire to move away from the former monopoly supply model that had been predominant until then toward a more competitive market structure. At the same time, the 1993 policy objectives called on the CRTC to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective. These policy objectives set the tone for much of the CRTC's regulatory agenda over the past twelve years during a transitional phase from a monopoly to a competitive supply model.

However, with a few limited exceptions, including s. 34 and 35,[17] the 1993 legislation does not equip the CRTC with many new tools to address competitive issues. As noted by the CRTC in its submission to the Panel, the *Telecommunications Act* grants the CRTC essentially the same powers to address competitive issues as it had enjoyed under the *Railway Act* in a monopoly environment. These powers are largely anchored in the tariff and rate approval process set out in s. 24 to 27, and especially in ss. 27.(2), which prohibits Canadian carriers from unjustly discriminating against any person or granting any person, including itself, an undue preference or advantage. While ss. 27.(2) has proven to be a very important provision in the development of competitive markets in Canada, it was clearly designed for a monopoly environment and does not embody principles of competition law or provide a predictable regulatory framework for business decisions.

As the Canadian telecommunications sector moves along the continuum from a monopoly supply model toward fully competitive markets, ss. 27.(2) provides an increasingly poor framework for analyzing and resolving competitive disputes between carriers or between telecommunications service providers and carriers.

The Panel considers that now there is a need to provide more specific direction on the application of competition policy to the more competitive market structure that has emerged and will continue to evolve in the coming years. It is time to move on from reliance on statutory provisions that are rooted in 19th century railway law.

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[17] Section 34 empowers the CRTC to forbear from regulation of a service or class of services provided by a carrier pursuant to five specific sections of the Act when competitive market forces were considered sufficient to protect the interests of users. Section 35 enables the Commission to require the provision or cessation of services by a Canadian carrier.

Competition analysis will play an important role in several areas, including defining relevant markets, assessing market power, addressing anti-competitive conduct and reducing barriers to entry. The first two of these tasks underpin competition law in most western economies including the European Union, the United States, Canada and Australia. Properly defining relevant markets and identifying the presence or absence of significant market power underpin the decision to continue to regulate or to forbear from regulation pursuant to s. 34 of the *Telecommunications Act*. Market definition and the assessment of market power also comprise an important element of the analysis of allegations of anti-competitive conduct. Failure to properly define relevant product and geographic markets or to properly assess market power can result in overregulation of markets that are workably competitive or, conversely, in a failure to regulate markets where one or more service providers abuse their significant market power. In either case, the outcome is not optimal from a public policy or economic perspective.

To better ensure that this critical analysis is performed in accordance with accepted competition law principles, the Panel recommends granting the TCT jurisdiction to conduct this analysis and make this determination with regard to both deregulation or re-regulation proceedings and alleged instances of anti-competitive conduct in telecommunications markets. This would extend to all segments of the market including both wireline and wireless services.

As discussed in Chapter 3 of this report, matters related to the definition of essential services and its application involve a combination of competition law, economics and telecommunications technology. The Panel therefore considers the TCT to be best placed to address these issues.

Finally, the Panel has considered the question of which institution should be responsible for reviewing mergers involving telecommunications service providers. The current arrangements for review of mergers in the broadcasting industry have been problematic. Both the CRTC and the Competition Bureau have authority to review changes of control in the broadcasting industry and, in at least one major case,[18] the two institutions have issued conflicting decisions, leading to confusion and uncertainty.

The same problem will exist in the telecommunications industry, particularly if the Panel's proposal is adopted to transfer spectrum regulation powers to the CRTC. The current spectrum regime requires regulatory approval from Industry Canada for changes of control of spectrum licensees, and this approval power would be transferred to the CRTC. The CRTC currently has the indirect power to review mergers (changes of control) involving most telecommunications service providers in their capacity as broadcasting licensees. The Competition Bureau also has power to review mergers involving telecommunications service providers as well as broadcasting undertakings under the *Competition Act*.

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[18] In 2001, Astral Media Inc. agreed to purchase certain radio businesses from Telemedia Radio Inc., including radio businesses in the province of Quebec.

Thus, both the Competition Bureau and the CRTC have jurisdiction, directly or indirectly, to review mergers in the telecommunications industry, and there is a demonstrated potential for inconsistent decisions, which can lead to confusion and uncertainty as well as delays. The Panel considers that it would be desirable to have a single review authority in order to expedite and lend certainty to the merger review process.

After considering the options, the Panel believes the TCT would be the best-suited institution to review changes of control in the telecommunications industry. The TCT will combine the competition policy and economy-wide merger review expertise of the Competition Bureau with the telecommunications sector-specific expertise of the CRTC. This expertise has become increasingly important in a converged industry environment, where telecommunications and broadcasting service providers have been, and will be, involved in merger and acquisition activity. In current and future telecommunications markets, the skills required to conduct merger reviews will be very similar to the skills required to conduct the other tasks of the TCT related to the application of competition policy in the telecommunications industry. These tasks include market definition and the determination of whether significant market power exists in pre- and post-merger telecommunications markets.

**Recommendation 4-14**

**The Telecommunications Competition Tribunal should have exclusive jurisdiction to determine the following matters:**

**(a) applications for deregulation of services in telecommunications markets on the basis that significant market power does not exist,**

**(b) complaints of anti-competitive conduct in all telecommunications markets, other than the terminal equipment market,**

**(c) determinations on which services should be subject to mandated wholesale access services and establishment of the regulatory regime applicable to such services,**

**(d) applications for re-regulation of services in telecommunications markets where significant market power is alleged to exist, and**

**(e) reviews of mergers involving telecommunications service providers.**

To ensure that the TCT and the Competition Bureau employ consistent principles, the Panel recommends requiring the TCT to define relevant markets and assess market power within those markets in accordance with jurisprudence under the *Competition Act*.

As discussed in Chapter 3, rather than continuing to rely on the non-discrimination provision set out in ss. 27.(2) of the *Telecommunications Act* to address all manner of anti-competitive conduct, the Panel recommends enacting a new provision to expressly address anti-competitive conduct in telecommunications markets. This would provide the TCT with analytical tools and guidelines specifically designed for telecommunications markets and would be consistent with the approaches to telecommunications reform in the European Union and Australia.

**Recommendation 4-15**

**The Telecommunications Competition Tribunal should define telecommunications markets and assess whether significant market power exists in accordance with competition law principles.**

### Resolving Jurisdictional Issues

One of the criticisms of the current split in jurisdiction between the Competition Bureau and the CRTC is that the dividing lines between them are blurred and that CRTC orders for "conditional forbearance" leave the industry unclear about which institution has jurisdiction in a given case. This in turn leads to "jurisdiction shopping" or to multiple applications in respect of the same issue. In the Panel's view, the proposed reforms will help to address this issue by granting the TCT exclusive jurisdiction over all allegations of civil anti-competitive conduct in telecommunications markets.

The Panel is not proposing changes to the Competition Bureau's jurisdiction to:

- investigate allegations of anti-competitive conduct that give rise to criminal law sanctions under the *Competition Act*
- review cases of misleading advertising or other consumer protection provisions
- investigate allegations of anti-competitive conduct in the telecommunications equipment market.

To clarify the respective roles of the TCT, the CRTC and the Commissioner of Competition, the Panel recommends putting formal mechanisms in place to further define these institutions' respective jurisdictions in telecommunications and to provide a process for resolving borderline cases. Such a process would be similar to the "Concurrency Regulations" used in the United Kingdom to clarify jurisdiction between Ofcom and OFT. In the Panel's view, the guiding principle should be the TCT's exclusive jurisdiction over civil allegations of anti-competitive conduct in the telecommunications sector. Whenever the CRTC or the Commissioner of Competition receives a complaint that gives rise to such allegations, they should be required to refer it promptly to the TCT for action and to advise the complainant of this action.

When a complaint deals *primarily with an allegation in another sector of the economy and only* tangentially affects the telecommunications sector, the Commissioner of Competition should be required to consult with the TCT to determine which institution should assume jurisdiction. In appropriate cases, the telecommunications aspect of the proceeding should be referred to the TCT for consideration. Where the Commissioner of Competition retains jurisdiction, he or she should be permitted to consult with the TCT.

Similarly, when the CRTC entertains a proceeding that involves a competition-related issue as part of a broader proceeding, it should be required to consult with the TCT to determine how best to proceed. If the TCT decides that it should have jurisdiction over the issue, the CRTC should be required to refer such issues to the TCT for its consideration and resolution.

Where the TCT finds issues of technical, social or rate regulation in a competition issue before it, it should refer such issues to the CRTC for determination. Similarly, if a remedy imposed by the TCT involves implementation of technical regulation (such as the establishment of a number portability regime or a new interconnection arrangement), it should be empowered to refer the issue to the CRTC for implementation. This is consistent with the approach taken in countries such as Australia where there is a split between the competition and technical regulators in the telecommunications sector.

**Recommendation 4-16**

**The Telecommunications Competition Tribunal should be granted exclusive jurisdiction over civil allegations of anti-competitive conduct in the telecommunications sector. Mechanisms should be put in place for consultation among the Telecommunications Competition Tribunal, the CRTC and the Commissioner of Competition to determine which institution should exercise jurisdiction in borderline cases.**

**Recommendation 4-17**

**Mechanisms should be put in place to enable the CRTC and the Commissioner of Competition to refer telecommunications competition issues to the Telecommunications Competition Tribunal when they arise in the context of broader proceedings that are properly within their respective jurisdictions, and for the Telecommunications Competition Tribunal to refer issues of a technical, rate-setting or social nature to the CRTC for determination or implementation.**

The Panel believes these measures will alleviate much of the uncertainty that characterizes the current environment. The proposed jurisdictions of the TCT, Commissioner of Competition and the CRTC in respect of telecommunications issues are summarized in the table below.

Table 4-2. Division of Jurisdictions

| **Issue** | **TCT** | **Competition Bureau** | **CRTC** |
|---|---|---|---|
| Deregulation of services where no SMP | X | | |
| Re-regulation of services where SMP exists | X | | |
| Definition of wholesale access services and delineation of applicable regime | X | | |
| Review of allegations of anti-competitive conduct (civil) where SMP is alleged to exist | X | | |
| Mergers | X | | |
| Anti-competitive conduct (criminal) | | X | |
| Misleading advertising | | X | |
| Competition in terminal equipment markets | | X | |
| Technical regulation | | | X |
| Spectrum management and licensing | | | X |
| Social regulation | | | X |
| Regulation of service providers with SMP | | | X |

# 5 Chapter 5
# Technical Regulation

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In this report, the term "technical regulation" is used to refer to several important types of regulation related to the physical facilities and equipment that telecommunications service providers require in order to operate telecommunications networks and to manage scarce resources such as spectrum and numbers.

Technical regulation activities currently include regulation of:

- use of radio spectrum, technical standards and equipment by Industry Canada
- access to telecommunications infrastructure such as towers, poles, conduits, rights-of-way and wiring in multi-unit buildings
- interconnection and numbering resources by the CRTC and industry organizations to which it has delegated responsibility.

These various kinds of technical regulation affect who can provide telecommunications services as well as the efficiency and competitiveness of those services.

The general objectives of technical regulation are to efficiently allocate scarce resources (e.g. numbers, spectrum), correct for externalities (e.g. the harmful effects of radio-frequency interference) and improve access to bottlenecks facilities (e.g. support structures, in-building wiring). In line with its general principles, the Panel believes technical regulation is justified when market forces alone are unlikely to achieve these objectives.

The specific purposes of technical regulation include:

- ensuring efficient network interconnection and interoperability between telecommunications service providers
- ensuring that telecommunications service providers have efficient, timely access to support structures, rights-of-way, in-building wiring and other facilities that are essential for the efficient rollout of telecommunications networks to all Canadians
- ensuring effective and efficient licensing of spectrum and radiocommunication transmitters in order to promote achievement of the telecommunications policy objectives recommended in Chapter 2, as well as provision of licence-exempt spectrum where appropriate
- preventing network harm and other harm through radio-spectrum interference, securing public health and safety, and ensuring that Canadians continue to have access to essential telecommunications services in emergencies
- ensuring efficient access to and use of numbering and addressing resources.

In line with the overall approach to telecommunications regulation recommended in this report, the Panel believes technical regulation should be efficient, effective and proportionate to its purposes. It should be designed so that it is competitively neutral and does not discourage investment.

## Support Structures, Rights-of-way, Building Access and In-building Wire

Telecommunications and other information and communications technologies or ICTs (see Chapter 7 of this report for a detailed discussion) play an increasingly important role in improving the economic and social welfare of Canadians. In order to deploy Canada's ICT infrastructure, improve Canadians' connectedness and ensure that customers can choose among competing networks and services, telecommunications service providers and distribution undertakings[1] (e.g. cable companies) must be able to access the infrastructure elements they need to build and maintain their networks.

Wireline and wireless carriers require access to rights-of-way and support structures (e.g. poles, towers, conduit). In addition, telecommunications service providers generally require access to in-building wiring in multi-unit buildings in order to supply services to customers. These elements are essential facilities. Without access to them, telecommunications service providers are unable to provision their networks or provide service to their end customers (see the review of essential facilities in Chapter 3). Furthermore, duplication of these facilities is uneconomic or undesirable. There has been increasing resistance from municipalities to the duplication of support structures. It is not in the public interest to have multiple sets of poles on streets or to have roads being dug up continually to accommodate multiple sets of underground ducts. It is also more economically efficient to share the costs of existing support structures than to duplicate this investment. Hence, these infrastructure elements are essential components of Canada's national telecommunications system.

The Panel believes all barriers to competition should be removed, including limitations on access to these critical infrastructure elements. Removal of these barriers will ensure that access is available to all telecommunications service providers on reasonable terms and conditions. Access needs to be timely, and any disputes regarding the terms of access must be resolved expeditiously. Denial or delays in obtaining access can lead to delays in the construction of networks and the provision of services. In the Panel's view, the timely resolution of disputes over access to these infrastructure elements is crucial to the timely rollout of communications networks, as well as to the ability of customers to exercise their choice of competing service providers and services.

In the past, network interconnection was of concern only to carriers who owned and operated their own networks. However, it has become increasingly important to telecommunications service providers who lease network elements from other carriers. Over the past decade, these "resellers" have gradually achieved limited interconnection rights. Consistent with the approach recommended in Chapter 3 to treat all telecommunications service providers equally, the Panel proposes to extend interconnection and access rights to all telecommunications service providers.

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[1] In ss. 2. (1) of the *Broadcasting Act*, "distribution undertaking" means an undertaking for the reception of broadcasting and the retransmission thereof by radio waves or other means of telecommunications to more than one permanent or temporary residence or dwelling unit or to another such undertaking.

Historically, access by telephone companies to support structures such as poles and ducts or to in-building wiring, ducts and risers in multi-unit buildings was not a significant concern. In order to avoid duplicating the cost of erecting and maintaining poles, it served the interests of electrical utilities and local telephone companies, both of which had local distribution monopolies, to pool their support structures or to grant each other reciprocal access rights. Similarly, in a monopoly environment, building owners had an interest in ensuring that their tenants had access to telecommunications services from the monopoly supplier, and municipalities had an interest in granting public utilities rights-of-way to construct their facilities.

However, disputes about access to electrical utility support structures and access to multi-unit buildings have increased over time, beginning with the licensing of cable television companies in the 1960s and escalating in recent years with the emergence of competition among multiple telecommunications carriers. The situation has been exacerbated by the fact that in some cases electrical utilities are themselves entering the telecommunications marketplace. Similarly, some municipalities have started to view the provision of rights-of-way as a revenue-generating opportunity and have sought to extract higher fees from telecommunications carriers to access their rights-of-way. In a few cases, municipalities have developed plans to build their own infrastructure to compete with telecommunications carriers. In such cases, municipalities would have the incentive and opportunity to favour their own infrastructure builds over those of other telecommunications carriers in the granting of access to rights-of-way.

It was evident from the Panel's consultation process that access to these critical infrastructure elements will continue to be an important issue as long as there is the potential for significant delays in obtaining access or for imposing inconsistent and possibly onerous charges and conditions for access by the owners of these essential infrastructure elements.

The CRTC has the authority under the *Telecommunications Act* (s. 43 and 67, respectively) to grant Canadian carriers and distribution undertakings access to public rights-of-way in order to construct transmission lines, and to make regulations setting standards for the height of those transmission lines. The CRTC also has the power to order a Canadian carrier who owns support structures to grant access to those structures to another service provider (ss. 43(5) of the Act). However, in some circumstances, a telecommunications carrier may have to apply to another authority (e.g. the Canadian Transportation Agency or a provincial public utility board) to obtain access to rights-of-way or support structures that are not owned by other telecommunications carriers.

The CRTC does not have any express authority over access to buildings. However, the CRTC has established a framework[2] of regulatory principles governing access to multi-unit buildings and in-building wiring. This framework relies to a large extent on negotiation between building owners and telecommunications carriers, with the CRTC acting as the arbitrator of disputes. The CRTC enforces this regime by means of rules applicable to the telecommunications carriers who either own or use such wiring. It has also stated its intention to rely on s. 42 of the *Telecommunications Act* to enforce building access codes against building owners.[3]

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[2] Decision 2003-45, Provision of Telecommunications Services To Customers In Multi-Dwelling Units, Ottawa, June 30, 2003. Available online at: **http://www.crtc.gc.ca/archive/ENG/Decisions/2003/dt2003-45.htm**

### Support Structures

In Canada, poles and ducts are used extensively to support telecommunications transmission lines. Telephone companies and electricity distribution companies own most of the poles that are used for these purposes. Historically, they have shared these resources, granting each other reciprocal rights to use these poles. Regulations are in place governing the height of poles and the portion of the poles that are dedicated to electricity distribution and telecommunications functions. In urban centres, telecommunications service providers also make extensive use of ducts. These are owned by carriers, municipalities, public utilities and other entities.

When support structures are owned by telecommunications carriers, the CRTC has clear jurisdiction to order access by third-party carriers for telecommunications purposes on terms and conditions it considers reasonable. However, when support structures are owned by third parties who are not also telecommunications carriers, the courts have ruled that, under the existing legislative framework, the CRTC lacks jurisdiction to order use by telecommunications carriers.

A 2003 decision[4] of the Supreme Court of Canada held that the words "transmission line" in ss. 43(5) of the *Telecommunications Act* could not be interpreted to extend to electrical distribution lines. Nor could ss. 43(5) be interpreted to extend to private property, including private easements where some of the electrical poles were located. The effect of this decision was to place resolution of disputes over access to support structures owned by electrical utilities outside the CRTC's jurisdiction and to prevent it from regulating access to such poles pursuant to ss. 43(5) of the Act.

Some provincial regulators, such as those in Alberta, Nova Scotia and Ontario, have exercised jurisdiction over the rates and terms and conditions of access to support structures owned by electricity distribution undertakings. The Public Utilities Commission in New Brunswick has also recently asserted jurisdiction to review the power company's support structure rates in that province. However, it is not clear that all provincial regulators will assume this jurisdiction or that they will adequately fulfil this regulatory role in all provinces and territories. Furthermore, their jurisdiction is limited to the companies they regulate, and does not extend to other entities. An equally important consideration is the fact that they are not regulating access pursuant to the policy objectives embodied in the *Telecommunications Act*, and they do not have a mandate to ensure fulfilment of these policy objectives. In addition, even in those jurisdictions in which provincial public utility boards have acted, there is a significant variance in both the methodology used to set rates and in the magnitude of the charges for third-party access to support structures.

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[3] Section 42 grants the CRTC very broad powers to order construction and provision of telecommunications facilities under conditions set out by the CRTC. It has yet to issue an access order against a building owner.

[4] Barrie Public Utilities v. Canadian Cable Television Association, [2003], 1 SCC 28 (16 May 2003). Available online at: **http://www.lexum.umontreal.ca/csc-scc/en/pub/2003/vol1/html/2003scr1_0476.html**

In the Panel's view, this is a serious issue that should be addressed. Support structures comprise an important element in the construction and expansion of telecommunications networks in Canada. Failure to ensure access to such structures in a timely manner and on reasonable terms could jeopardize the competitive telecommunications infrastructure envisaged in this report, upon which so many of the other proposed policy reforms rely.

There is a generally recognized public interest in encouraging shared use of support structures. This policy originated in the 20th century public utility environment where there were monopoly suppliers of telephone or electricity services for the public's benefit. In addition, there are sound environmental and public convenience reasons to restrict the duplication of poles on public roads and the number of times that city streets are excavated to install new conduits. Furthermore, a requirement for new entrants to build their own support structures would act as a significant economic barrier to new entry into the telecommunications market, a barrier that would undermine other reforms recommended in the report.

The recent Ontario Energy Board (OEB) decision[5] regarding access to support structures owned by electricity distribution utilities illustrates some of the difficulties cable television companies encounter. As noted in that decision, the electricity distributors have monopoly power based on the fact that, in the absence of regulation, they can control access to their poles. This point was underscored by the fact that the parties had failed to reach agreement on support structure access by a local cable television company for more than a decade. The OEB noted that this degree of uncertainty is not in the public interest.

Another example of how unregulated control over access to the electricity support structures can thwart or delay a telecommunications service provider's build-out and upgrade of telecommunications infrastructure occurred in Atlantic Canada. In that instance, a municipally owned electrical utility with plans to create its own fibre network prevented the local cable television company from accessing its poles for purposes of upgrading its cable distribution plant to offer high-speed Internet and telephone service. The cable company had to resort to using the local telephone company's unbundled local loops to provide telephone service in the area.

In another instance, a municipally owned electrical utility in Ontario with a municipally owned telephone company affiliate, refused a cable television company access to support structures for the purpose of installing facilities, when the cable company could not reach agreement on the terms and conditions of access. The refusal jeopardized the cable television company's ability to provide high-speed Internet services in competition with the municipally owned telephone company.

The growing involvement of electrical utilities in the telecommunications industry as competitive telecommunications service providers raises the possibility that access-related issues may increase in the future, since these utilities control access to an essential facility and may gain a competitive advantage by providing preferential access to their telecommunications affiliates.

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[5] Ontario Energy Board Decision and Order on CCTA Application (RP-2003-0249), March 2005. Available online at: **http://www.oeb.gov.on.ca/documents/communications/pressreleases/2005/press_release_ccta_decision_080305.pdf**

While telecommunications carriers and electricity distribution utilities are the principal owners of support structures in Canada, they are not the only owners. Ducts, poles and other structures capable of supporting telecommunications transmission lines are also owned by other entities including municipalities, other utilities, railways and private entities. For this reason, the Panel believes a broadening of CRTC jurisdiction over access to such structures for telecommunications purposes is required, including the power to provide timely resolution of access disputes.

Section 43.(5) of the *Telecommunications Act* is too narrow in its current form to fulfil the policy objectives in the Act. In addition to the problems associated with a narrow definition of "transmission line," the current wording of the subsection refers only to support structures "constructed on a highway or other public place" and only confers "a right of access to the supporting structure" on such conditions as the CRTC may grant. This has opened the door to arguments before the courts that the CRTC lacks jurisdiction to order access to support structures located on public lands that are not in the nature of public highways, or that are publicly owned — but not generally accessible by the public at large. It has also been argued that the power of the CRTC to order "access to the supporting structure" does not include the right to order ongoing maintenance, repair and operation of the transmission facilities being supported, and that the reference in ss. 43.(5) to support structures being constructed "on a highway or other public place," precludes access to structures that are underground or that run over public places. The Supreme Court of Canada has confirmed that this section does not extend to support structures located on privately owned land.

In the Panel's view, all of these restrictions can lead to unacceptable delays in the expansion of new telecommunications infrastructure to Canadians. While the Panel does not recommend extending CRTC jurisdiction to require owners of private property to permit new support structures to be constructed on their land, where such structures already exist (through the grant of easements or otherwise), the rights of competitive telecommunications service providers to access such structures should be enforceable by the CRTC.

**Recommendation 5-1**

**The wording of subsection 43.(5) of the *Telecommunications Act* should be expanded to ensure that the CRTC has a clear power to resolve disputes and order access to support structures constructed on, over, along or under public or private property of all descriptions. These access rights should be defined to include the right to install, maintain, repair and operate transmission facilities as defined in the Act. Subsection 43.(5) should be amended to ensure that it applies to support structures owned by electricity utilities, municipalities and other parties.**

As discussed above, separate parts of poles are normally used for telecommunications and electricity distribution, with electricity distribution occupying the top portion and telecommunications carriers making use of the mid-section. In these circumstances, it appears reasonable in the case of joint-use poles to accord provincial regulators jurisdiction over access to the electricity distribution space on the poles, and to accord the CRTC jurisdiction over access to the communications space. Although disputes could arise between the regulators, the Panel believes such disputes will not be frequent and can be resolved through consultation between the regulators. In the Panel's view, the issue of access to support structures owned by electrical utilities is similar from a jurisdictional perspective to the issue of access to municipal rights-of-way that Parliament addressed in s. 43 of the *Telecommunications Act*. This section of the Act requires telecommunications carriers wishing access to highways or other public places to obtain the consent of the municipality or other public authority having jurisdiction over the property in question. When consent cannot be obtained on terms acceptable to the telecommunications carrier or broadcasting distribution undertaking, ss. 43(4) empowers the CRTC to resolve the dispute and to set terms and conditions of access.

In the Panel's view, a similar approach should be taken to support structures owned by provincially regulated electrical utilities, municipalities and others. The parties should be required to attempt negotiations on a commercial basis, and the CRTC should be empowered to resolve access disputes and to establish terms and conditions of access to the telecommunications space on or in support structures when the parties are unable to reach agreement.

**Recommendation 5-2**

**The CRTC should be empowered to resolve disputes over the terms and conditions of access between telecommunications service providers or broadcasting distribution undertakings and third-party owners of support structures, including, but not limited to, support structures owned by electricity utilities, municipalities or other parties. Under this new regime, parties should be required to attempt to reach agreement on access, failing which the CRTC should be empowered to resolve any disputes and order access on terms and conditions, including rates, that are binding on both parties.**

Where the purpose of the CRTC's ruling is to regulate the ability of Canadian telecommunications works and undertakings to operate effectively, the CRTC should have a pre-emptive jurisdiction over telecommunications use of support structures.

At the same time, the Panel recognizes that provincial regulatory authorities have a valid interest in ensuring that all electrical safety issues are addressed and that the rate set for access to electricity distribution poles compensates the utility and does not adversely affect electricity rates. Therefore, in those instances in which a provincial regulatory body has already established a right to access support structures owned by a utility within its jurisdiction, it is appropriate for the CRTC to take into account the interest of the provincial regulator in setting compensatory rates, and to consult with that regulator before ruling on a support structure rate or terms and conditions of access. In addition, the CRTC should not interfere with terms and conditions that address electricity standards or safety issues.

**Recommendation 5-3**

**The CRTC, prior to making an order to resolve a dispute involving access to support structures owned by an entity that is provincially regulated, should be required to consult with any provincial regulator that has ruled on the relevant terms and conditions of access.**

## Rights-of-way

Access to rights-of-way over publicly owned property has long been important to the development of telecommunications infrastructure in Canada. The principle that Canadian carriers should be able to obtain access to publicly owned lands for the purpose of extending their networks and providing telecommunications services to the public was enshrined in ss. 43.(2) of the *Telecommunications Act*. Reasonable access to rights-of-way is particularly important in a competitive environment, since new entrants were not able to construct their facilities in the more cooperative environment that existed in earlier days of monopoly service, when municipalities had an incentive to encourage telephone utilities to extend their networks and provide services to the public.

In recent years, with the proliferation of new carriers, municipalities have become more reticent about permitting access rights to multiple carriers, and some have sought to turn their control of local lands into a revenue opportunity. Access restrictions and unreasonable terms of access have been identified by new entrants as a significant barrier to new entry and an inhibitor of network expansion.

While ss. 43.(2) to (4) of the *Telecommunications Act* establish a workable process for the CRTC to resolve disputes between Canadian carriers or broadcast distribution undertakings (BDUs) and municipal or other public authorities, the wording of those provisions has been subject to some of the same criticisms advanced in respect of ss. 43.(5) discussed above.

As is the case of ss. 43.(5), the reference in ss. 43.(2) and (3) to any "highway or other public place" has led to disputes over whether all publicly owned or controlled property is subject to this regime, or just some subset of public property.[6] As previously discussed in respect of ss. 43(5), the Panel is of the view that the CRTC's jurisdiction should be clarified to ensure it extends to all publicly owned or controlled lands.

The Panel believes ss. 43.(4) is also in need of clarification. The current wording of this subsection leaves some doubt about the scope of disputes that the CRTC can entertain regarding access to rights-of-way. Unlike ss. 43.(2), which contemplates entry onto public lands for the purpose of "constructing, maintaining or operating its transmission lines," the powers of the CRTC are described in ss. 43.(4) as pertaining only to the "construction" of such transmission lines. This had led some parties to claim that the CRTC cannot ensure that telecommunications service providers have access for purposes of maintaining, repairing or operating transmission lines once they are installed. Again, the Panel believes this subsection should be amended to make clear the CRTC's power to resolve all facets of such access disputes.

At least one municipality has also submitted that the current wording of ss. 43.(2) to (4) limits the CRTC's authority to order comprehensive arrangements for access to municipally owned property because of its requirement for the CRTC to balance the interests of other users with the interest of telecommunications service providers, as required by the provision. Proponents of this viewpoint have argued that each access request within a municipality must be handled as a separate matter. In the Panel's view, this "case by case" approach would be highly inefficient and would add significantly to the time and expense of obtaining the requisite consents or approvals. It would therefore increase barriers to entry and the efficient provision of telecommunications services to the public.

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[6] See, for example, Telecom Decision 2005-36, Part VII application by Allstream Corp. seeking access to Light Rail Transit Lands in the City of Edmonton, June 17, 2005. This decision is currently the subject of an appeal to the Federal Court of Appeal.

In the Panel's view, the CRTC is capable of balancing the interests of other users in deciding rights-of-way issues and should be empowered to make decisions with approaches that accommodate those interests generally. It is also in the public interest to limit the number of disputes brought before the regulator by establishing general policies, principles or guidelines that can be applied to a wide range of circumstances by the parties.

**Recommendation 5-4**

**The wording of subsections 43.(2) and (3) of the *Telecommunications Act* should be expanded to ensure that the CRTC has the power to resolve disputes and order access to public property of all description. These access rights should be defined to encompass the right to install, maintain, repair and operate all "transmission facilities" as defined in the Act. The CRTC's power to order remedial action in subsection 43.(4) should include access for the purposes of maintaining, repairing or operating transmission facilities, as well as constructing or installing them. Subsection 43.(4) should also be clarified to empower the CRTC to establish and enforce principles of general application that can be used by parties to negotiate broad-based municipal access agreements, which can then be brought to the CRTC for review or dispute resolution if parties are unable to reach agreement.**

## Support Structures — Antenna Towers

Access to antenna towers, including rooftop antennas, is also critical to the expansion and operation of Canada's telecommunications and ICT infrastructure. Increasing demand for new wireless services and technologies requires the continuing development of fixed and mobile wireless infrastructure. As discussed in Chapter 1, the Panel is convinced that wireless technology is a promising avenue for increased competition in a number of telecommunications markets such as voice services and broadband access. The Panel therefore believes access to antenna towers to be essential for the development of a competitive telecommunications market.

During the Panel's consultation process, a number of parties expressed concerns about the current lack of antenna tower sharing and the difficulties they had encountered in trying to co-locate on existing towers. The Panel is also aware of instances in which a telecommunications carrier has been unable to install a rooftop antenna because another carrier has entered into an exclusive arrangement with a building owner. The Panel considers it essential for these kinds of barriers to market entry and network expansion to be removed, so competitive markets can offer customers a full choice of service providers and services and so the cost of network expansion can be reduced.

In addition to these concerns related to competition, as noted in Industry Canada's "Report on the National Antenna Tower Policy Review,"[7] the proliferation of antenna towers across Canada has raised public concerns regarding the visual impact of antenna structures in both urban and rural areas and the potential effect on human health of exposure to radio energy, as well as concerns about radio interference. These public interest concerns provide further justification for policies that encourage tower sharing and non-exclusive rooftop arrangements.

Because antenna towers are generally owned by wireless carriers rather than by third-party utilities, antenna tower access issues differ from the wireline support structure access issues discussed in the subsection above. However, there is a similar public interest in discouraging the duplication of unsightly towers. Unlike wireline support structures, which are mainly built on public rights-of-way along streets and highways, wireless support structures are often located on private property. In the wireless environment, a choice site is one that provides the optimal coverage of the areas that the carrier wishes to reach. Good site selection can save a carrier the expense of locating more than one transmitter in a given region. For this reason, there is considerable competition among wireless carriers for choice tower locations, or for locations on particular rooftops in urban areas. This competition for sites has led to a practice of obtaining exclusive rights to choice building rooftops in order to gain a competitive advantage.

The Minister of Industry, who currently has exclusive responsibility for regulating tower sitings, requires radiocommunication carriers to conduct meaningful consultations with all local municipalities or land use authorities to develop consensus solutions. The "Report on the National Antenna Tower Policy Review" recommends that Industry Canada should develop and implement policies designed to explicitly encourage the sharing of antenna towers and other support structures for mounting radio antennas. Given the importance of access to antenna towers, the Panel supports the recommendations made with respect to the sharing of antenna towers and encourages Industry Canada to act upon these recommendations.

In this report, the Panel recommends transferring Industry Canada's spectrum management and regulatory functions to the CRTC. This includes the responsibility for, and jurisdiction over, antenna tower sitings. Under Industry Canada's current authority, if a proposed or installed antenna is found not to comply with established antenna siting requirements, the department's primary enforcement tool is for the Minister to amend, suspend or revoke the radio authorization. Although the Minister has this power, it is seldom used, given the harshness of the penalty and potential disruption of service to customers. In transferring authority for regulation of telecommunications antennas to the CRTC, the Commission should be given clear powers to mandate tower sharing under the *Telecommunications Act*. It is expected that this authority will be used only when all other avenues for the parties to come to a reasonable agreement have been exhausted. The CRTC could then enforce antenna sharing through other tools available to it to deter non-compliance, including the new fining powers that the Panel recommends in Chapter 9 of this report.

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[7] Industry Canada Registration Number 54220B, Principal Investigator: David A. Townsend, Faculty of Law, University of New Brunswick, Fredericton, New Brunswick, November 2004. Available online at: **http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/en/sf05353e.html**

**Recommendation 5-5**

**The CRTC should be empowered to regulate and promote the sharing of antenna towers used for telecommunications purposes, resolve disputes regarding tower access, and enforce its regulations in an effective and timely manner.**

In addition to the recommendations made in the "Report on the National Antenna Tower Policy Review," the Panel believes specific recommendations should be made to address the issue of access to rooftops. In the Panel's view, the current ability of wireless carriers to enter into exclusive rooftop arrangements with building owners that prohibit other wireless carriers from gaining access to those rooftops could become a significant barrier to entry that could impact the development of competitive telecommunications markets and increase the cost of new entry. To prevent wireless carriers from limiting access to rooftop antenna locations, the Panel believes the CRTC should be empowered to prohibit wireless carriers from entering into exclusive agreements with building owners, as well as to resolve disputes involving rooftop access. This is consistent with the Panel's recommended approach to regulating building access, which is discussed in the next subsection.

**Recommendation 5-6**

**The CRTC should be empowered to prohibit wireless carriers from entering into exclusive arrangements for locating telecommunications antennas on rooftops and, in those cases where building owners and wireless service providers are unable to agree on terms and conditions of access, should be empowered to resolve the dispute on such terms as it considers appropriate, with its rulings binding on the parties.**

### Access to Multi-unit Buildings

Telecommunications service providers need access to multi-unit buildings to provide owners and tenants with a choice of telecommunications services and suppliers. In-building wiring, risers and ducts in multi-unit buildings are all part of the "last mile" of telecommunications networks. Unless competing telecommunications service providers have access to these facilities, many of the regulatory reforms introduced by the CRTC over the past decade and many of the new reforms recommended in this report to promote competition may not benefit the large number of Canadian consumers and businesses that rent or own units in multi-unit buildings.

Some building owners have taken advantage of the opportunity presented by the emergence of competing telecommunications service providers wishing to serve multi-unit buildings to restrict access in a selective manner, or to impose onerous terms and conditions for access. These practices have the potential to restrict consumer and business choice of telecommunications service providers, thereby thwarting a key objective of Canadian telecommunications policy.

The CRTC has responded to this problem by developing a framework of regulatory principles governing access to multi-unit buildings and in-building wiring, guidelines for contractual arrangements between building owners and telecommunications carriers, and rules respecting the use of equipment rooms, risers, ducts and in-building wiring.[8] The framework sets out the terms and conditions that should govern the use of these in-building facilities by Canadian carriers. Parties are expected to negotiate access arrangements in accordance with those principles and apply to the CRTC for relief where agreement is not possible.

The CRTC has indicated that it intends to use the powers set out in s. 42 of the *Telecommunications Act* to enforce these guidelines against building owners who seek to impede access to multi-unit buildings, or who otherwise disregard the guidelines.[9] However, the Commission's jurisdiction under this section of the Act has been challenged in the courts.[10] It is not unreasonable to expect that further legal challenges will be made if the Commission issues this type of order in the future.

The Panel is concerned that a key objective of Canadian telecommunications policy could be thwarted unless competing telecommunications service providers can obtain access to multi-unit buildings and to the equipment rooms, in-building wiring and risers that are required to serve the occupants of such buildings. For this reason, the Panel believes it is critically important for the CRTC to be empowered to establish terms and conditions of access to multi-unit buildings as well as to resolve access disputes.

In the Panel's view, this is too important an issue to be settled by litigation. While the issue of access to multi-unit buildings raises constitutional issues respecting property and civil rights, it is not dissimilar to the issue of access to municipal property and rights-of-way that Parliament has already addressed in s. 43 of the *Telecommunications Act*. The Panel believes there is an equally strong case to be made for the CRTC to be granted the power to establish terms and conditions governing access to multi-unit buildings and to resolve disputes when the parties are unable to reach agreement in accordance with these regulations.

The Panel believes the CRTC's jurisdiction over access to multi-unit buildings should extend from a building's property line to the telecommunications entry point and into the building itself. It should include access to equipment rooms, risers, ducts and in-building wiring located within the building. Since access to the latter facilities will be meaningless unless telecommunications service providers also have access over or under the property on which the building is located, the CRTC's jurisdiction should also include access to support structures on the property that provide access to the building (e.g. poles, ducts or trenches).

**Recommendation 5-7**

**The CRTC should be empowered to establish guidelines for access to multi-unit buildings, including guidelines for the pricing and terms and conditions of access. Telecommunications service providers and building owners should be required to negotiate access arrangements in accordance with such guidelines.**

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[8] Decision 2003-45

[9] Decision 2003-45.

[10] *Canadian Institute of Public and Private Real Estate Cos. v. Bell Canada et. al.*, 2004 FCA 243. Available online at: **http://www.crtc.gc.ca/eng/publications/reports/t_review05.htm**. The relief requested was denied on the basis that the legal challenge was premature — the CRTC not having actually exercised its powers pursuant to s. 42, but only having stated its intention to do so.

**Recommendation 5-8**

**The CRTC should be empowered to resolve disputes between telecommunications service providers and building owners respecting access to multi-unit buildings, including access to the building itself from the property boundary, as well as in-building wiring, related ducts, risers and equipment rooms, for purposes of providing telecommunications services to tenants and other users in the building. When the CRTC exercises this jurisdiction, its ruling respecting terms and conditions of access should be binding on the parties.**

## Network Interconnection

Interconnection between the many different types of public telecommunications networks operating in Canada today is essential to their functioning. The proliferation of technologies based on Internet Protocols (IP) will likely increase the need for network interconnection, in order to provide Canadians with access to the wide range of new applications that can be delivered over IP-based platforms.

The CRTC has the power to regulate the terms of interconnection and access to the facilities of Canadian carriers under s. 29, 40 and 42 of the *Telecommunications Act*. Recommendations regarding the economic regulation of interconnection services are presented in Chapter 3. In addition, the Panel believes the CRTC should continue to address technical issues related to interconnection arrangements and to resolve disputes between parties.

The CRTC established the CRTC Interconnection Steering Committee (CISC) to assist in the development of interconnection standards and arrangements. CISC is an industry working group that includes among its members carriers, service providers, equipment manufacturers and interested members of the public. CISC studies interconnection-related issues at the request of the CRTC or its participants, and reports back to the Commission with recommendations. CISC also assists the CRTC in developing information, procedures and guidelines regarding various aspects of the CRTC's regulatory activities.

Interconnection issues can pose a barrier to entry in telecommunications markets by delaying or preventing the entry of competitors. In a competitive environment, it is critical for the CRTC to be able to address and resolve interconnection-related issues and disputes in a thorough and timely fashion through a working group such as CISC.

The past successes of CISC demonstrate that industry participants can produce timely and effective results by working together to resolve common issues in an open forum. However, during the Panel's consultation process, a number of concerns were raised regarding the current CISC process. The Panel believes that addressing these concerns will improve the effectiveness of CISC.

Concerns were raised regarding the reference of policy issues to CISC for resolution. The Panel believes policy issues should be addressed directly by the CRTC. CISC's role should be to address technical, operational, administrative, and implementation issues on the basis of clear direction from the CRTC.

Concerns were also raised regarding the current level of involvement in and supervision of CISC activities by CRTC staff. Inadequate CRTC staff involvement and lack of supervision can lead to delays in CISC activities and reduce the effectiveness of the CISC process. Ensuring that the CRTC provides appropriate staff resources and active management should improve the effectiveness and efficiency of the CISC mechanism.

In addition, concerns were raised about the length of time it takes CISC to address and resolve issues. Since many of the issues referred to CISC by the CRTC must be resolved in order to increase competition in telecommunications markets, timely resolution of these issues is essential to advancing implementation of the telecommunications regulatory framework envisaged by this report, and to increasing the effectiveness of the CISC process.

## Spectrum Policy and Regulation

Industry Canada's spectrum regulation and management activities aim at supporting the orderly development of telecommunications infrastructure and services in Canada by obtaining and providing access to radio spectrum and regulating its use. The department's mandate for spectrum management and regulation derives from the Minister's responsibilities under s. 4, 5 and 6 of the *Department of Industry Act*, and in more specific terms from s. 5 and 6 of the *Radiocommunication Act*, s. 22 of the *Broadcasting Act* and s. 7, 8 and 10 of the *Telecommunications Act*. Its mandate also involves providing support to other federal departments and agencies under certain provisions of s. 7 of the *Emergency Preparedness Act*. Industry Canada's specific spectrum regulation and management functions include: development of spectrum management, regulatory and operational policies and procedures; spectrum authorizations (granting licences for satellite and radiocommunication systems); and enforcement of spectrum-related regulations.

In addition to these regulatory responsibilities, Industry Canada sets domestic spectrum policy, and coordinates spectrum usage and radiocommunication standards with other countries. International treaties and agreements developed by the International Telecommunication Union (ITU) govern the uses of the radio frequency spectrum and deployment of radiocommunication systems around the world, including the orbital positions of satellites in space. As a member of the ITU, Canada has assumed treaty obligations under the ITU Constitution and Convention and Radio Regulations with respect to the regulation of Canadian stations that are capable of causing harmful interference to radio services of other countries.

Through provisions developed under the *Emergency Preparedness Act*, Industry Canada is the lead department for ensuring the integrity and functionality of Canada's telecommunications infrastructure in times of emergency.

## Developments in Spectrum Policy and Management

Internationally, there has been a trend among spectrum managers to move away from the traditional prescriptive models of spectrum assignment toward more flexible and market-oriented approaches. This has been done in order to promote innovation, competition and the efficient use of spectrum. The United Kingdom, the United States and Australia are among the countries that have adopted more market-based approaches to spectrum regulation. These countries use auctions as a tool to assign spectrum to users when demand exceeds supply. They are also liberalizing spectrum use and promoting the development of "secondary markets" for spectrum by allowing spectrum trading and lease arrangements. Recently, the European Union's expert group on spectrum, the Radio Spectrum Policy Group, adopted an opinion calling for a more flexible approach to spectrum management.[11] This is seen as an important step forward in developing a market-oriented approach to spectrum management across the European Union.

A summary of the major developments in spectrum policy and management in the United States, the United Kingdom and Australia follows.

### United States

In June 2002, the U.S. Federal Communications Commission (FCC) Chair Michael Powell established a Spectrum Policy Task Force[12] to explore improvements in spectrum management. Following consultations, the task force issued a report in October 2002 containing 39 specific recommendations. One of the key conclusions of the report was that problems with spectrum access go beyond the physical lack of spectrum. The traditional "command and control" model of spectrum management is a primary cause of regulatory failure due to the significant restrictions it imposes on spectrum use and users. The report also identified many technological advances, such as cognitive radio,[13] that will allow access to underutilized spectrum and enable more intensive and efficient spectrum use, as well as advances that will allow systems to be more tolerant of interference. The principal recommendations to the FCC were to:

- migrate from the current command and control model of spectrum regulation to market-oriented exclusive rights, unlicensed device and commons models
- implement ways to increase access to spectrum in all dimensions for users of both unlicensed devices and licensed spectrum
- implement a new paradigm for interference protection.

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[11] Radio Spectrum Policy Group Opinion (European Union), *Wireless Access Policy for Electronic Communications Services (WAPECS), (A more flexible spectrum management approach)*, November 23, 2005 (RSPG05-102final). Available online at: **http://www.mtib.gov.pl/prezentacje/jednostki/1/dokumenty/rspg05-102_final_opinion_on_wapecs.pdf**

[12] Federal Communications Commission, *Spectrum Policy Task Force Report*, United States, released December 22, 2002 (ET Docket No.02-135). Available online at: **http://www.tiaonline.org/policy/filings/02-135.pdf**

[13] Cognitive radio is a radio or system that senses, and is aware of, its operational environment and can be trained to dynamically and autonomously adjust its radio operating parameters accordingly (Note: the definition of cognitive radio is under review in many fora).

Since the report was published, the FCC has been aggressively working toward implementing its recommendations through a number of wide-ranging and service-specific rule-making proceedings and inquiries. Examples include improving access to spectrum in rural areas, studying interference immunity performance standards for radio receivers, establishing an interference temperature metric, allocating additional spectrum for unlicensed devices, facilitating cognitive radio technologies, and eliminating barriers to secondary markets in spectrum (e.g. by giving licensees flexibility to lease or transfer their unused or underutilized spectrum rights).

### United Kingdom

In November 2004, the Office of Communications (Ofcom) issued a *Spectrum Framework Review*[14] for consultation, with a final statement published in November 2005.[15] The main objective of the review was to develop proposals to enable radio spectrum licence holders to make more efficient use of their spectrum and to encourage innovation and investment in wireless communications services across the U.K.

The consultation recognized that the traditional "command and control" method of spectrum regulation, in which spectrum is centrally managed by the regulator, has become problematic. As demand for spectrum has started to exceed supply, centralized administration has resulted in an inefficient system that has limited innovation and the development of higher-value services. Ofcom concluded that, as a light-touch regulator, its preference should be to move away from central management, allow market forces to prevail and increase the use of licence-exemption. Licence-exemption is a key area for innovation and growth, in areas such as WiFi® and Bluetooth®.

Ofcom's spectrum management vision includes the following:

- Spectrum should be free of technology and usage constraints as far as possible. Policy constraints should be used only where they can be justified.
- It should be simple and transparent for licence holders to change the ownership and use of spectrum.
- Rights of spectrum users should be clearly defined, and users should feel comfortable that they will not be changed without good cause.

Ofcom intends to achieve this vision by:

- providing licence-exempt use as needed in around 6.9 percent of spectrum
- allowing market forces to prevail by introducing spectrum trading (e.g. buying, selling, aggregating or disaggregating spectrum holdings) and liberalizing spectrum use in around 71.5 percent of spectrum
- continuing to manage the remaining 21.6 percent of spectrum using current approaches.

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[14] Ofcom, "Spectrum Framework Review," United Kingdom, November 23, 2004. Available online at: **http://www.ofcom.org.uk/consult/condocs/sfr/sfr2/sfr.pdf**

[15] Ofcom, *Spectrum Framework Review Statement*, United Kingdom, June 28, 2005. Available online at: **http://www.ofcom.org.uk/consult/condocs/sfr/sfr/sfr_statement**

Ofcom plans to reach these targets by 2010 — an ambitious objective considering it currently has approximately 4.3 percent of spectrum as licence-exempt, 0 percent with spectrum trading and liberalization, and 95.7 percent under "command and control."

### Australia

Australia was one of the first countries to recognize the potential for market-oriented approaches to spectrum management. Examples of approaches adopted include: spectrum auctions as a licence assignment tool when demand exceeds supply, market-based pricing through a combination of administrative incentive pricing (a fee formula[16]) and auctions, and secondary markets trading in radiocommunication licences (both spectrum and apparatus licences) including leasing of licences.

In June 2004, the Australian Communications Authority (ACA)[17] published "From DC to Daylight — Accounting for Use of the Spectrum in Australia: A Spectrum Management Strategy."[18] The report was published following the Productivity Commission's Radiocommunications Inquiry Report in December 2002, which reviewed spectrum management in Australia. The Productivity Commission concluded that although Australia has adopted many market-based approaches to spectrum management, market-based reform should be accelerated and extended. The ACA's strategy document outlines key spectrum management issues facing the ACA and outlines a strategy for implementing changes to encourage a progressive shift toward the market-based management of spectrum.

Specific areas for improvement outlined in the Australian strategy document include: spectrum refarming[19] to accommodate new services, encouraging the use of efficient technologies such as ultra wideband (UWB), extending market-based pricing (e.g. in areas where auctions are inappropriate, the ACA expects to make greater use of market information derived from auctions within the administrative pricing model), continuing the policy of using spectrum auctions to allocate spectrum where there is competing demand between users and uses, continued use and potential greater role of secondary trading, and the potential use of spectrum managers for the sale of encumbered spectrum licences.

### Canada

Canada has also been moving toward more flexible and market-oriented approaches to spectrum management. Industry Canada has introduced spectrum auctions as a form of competitive licensing and spectrum trading to certain licences. The department has designated spectrum to a use rather than to a user, and regulations and technical standards have been modified over the past decade to be technology neutral. The department also promotes access to spectrum for new services, such as the increasing demand for licence-exempt applications, and has recently released new spectrum in the 5 GHz range for licence-exempt applications.[20]

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[16] Administrative incentive pricing mimics the operation of a market. Higher fees apply in areas where there is high demand (congestion) and lower fees apply where there is less demand.

[17] In July 2005, Australia merged the responsibilities of the Australian Broadcasting Authority (ABA) and the Australian Communications Authority (ACA) to form the Australian Communications and Media Authority (ACMA), which is now responsible for the regulation of broadcasting, radiocommunications, telecommunications and online content.

[18] Australian Communications Authority, *From DC to Daylight — Accounting for Use of the Spectrum in Australia: A Spectrum Management Strategy*, June 2004. Available online at: **http://www.acma.gov.au/ACMAINTER.131456:STANDARD:2045810989:pc=PC_1650**

[19] Spectrum refarming is a process of redeploying spectrum from existing users and reallocating it to others.

In May 2005, Industry Canada initiated a review of Canada's spectrum policy framework.[21] The intent of the review is to ensure that the framework can accommodate the increasing demand for wireless products. The consultation paper invited comments on areas where spectrum management practices could be improved in order to increase the efficiency of spectrum use, enable more flexible use of allocations, and generally facilitate access to spectrum for both licensed and licence-exempt[22] applications for future services and consumer products.

Some specific areas on which the department is consulting are:

- accommodating new technologies such as cognitive radio, software-defined radio (SDR) and ultra-wideband (UWB) technology[23]
- increasing spectrum-usage flexibility (e.g. a licence issued for fixed service could permit the provision of mobile service)
- considering granting longer licence terms and secondary market privileges beyond licences that currently have these privileges
- expanding secondary market privileges to allow lease-type arrangements
- streamlining the first-come, first-served licensing process
- adopting policies and procedures to further facilitate the provision of communications in rural and remote areas (e.g. relaxing technical standards of systems in rural and remote areas).

The Panel supports the intent of the spectrum policy framework review and recognizes that, like other countries, Canada has been moving toward adopting some market-based approaches within its predominantly prescriptive framework for spectrum management. The Panel notes, however, that the move toward adopting market-oriented approaches has been tentative.

The Panel believes there is considerable potential for mobile wireless to become a competitive alternative to wireline voice services, and for wireless broadband networks to provide a competitive alternative to broadband services offered by wireline telephone and cable companies. To ensure that the full potential of wireless is exploited, Canada needs a policy framework that supports a strong and vibrant industry, enhances the efficient use of spectrum and facilitates the adoption of wireless. It should be a goal of Canadian spectrum policy to ensure that adequate licensed and licence-exempt spectrum is made available in a timely fashion to permit increased choice, encourage innovation and facilitate the deployment of advanced fixed and mobile wireless services with the appropriate level of oversight.

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[20] Industry Canada, *Spectrum Utilization Policy for Licence-exempt Wireless Local Area Networks in the 5 GHz Range* (Issue 2), April 2005 (SP-5150). Available online at: **http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwapj/sp5150-i2e.pdf/$FILE/sp5150-i2e.pd1**

[21] Industry Canada, *Consultation on a Renewed Spectrum Policy Framework for Canada and Continual Advancements in Spectrum Management*, May 2005 (Gazette Notice DGTP-001-005). Available online at: **http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwapj/spfconsultation2005-e.pdf/$FILE/spfconsultation2005-e.pdf**

[22] A radio licence is not required for the use of spectrum, with operation on a no-protection, non-interference basis, and under specific technical parameters.

[23] Industry Canada, *Consultation Paper on the Introduction of Wireless Systems Using Ultra-wide Band Technology*, February 2005 (Gazette Notice SMSE-002-05). Available online at: **http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwapj/smse002consultation-e.pdf/$FILE/smse002consultation-e.pdf**

In the following subsection of this chapter, the Panel recommends retaining responsibility for broad spectrum policy with Industry Canada, but transferring its spectrum regulation and management functions to the CRTC. In preparation for this transfer, the Panel believes Industry Canada should develop a new spectrum policy that provides a clear set of policy directions to the CRTC in carrying out its new mandate for spectrum management and regulation. In the Panel's view, key elements of the spectrum policy trends it has observed in other countries — such as greater reliance on market-oriented approaches in order to encourage and enhance the efficient use of spectrum — should be considered for inclusion in the new policy.

**Recommendation 5-9**

**Industry Canada should develop a new spectrum policy to provide clear direction to the CRTC in exercising its new authority to manage and regulate Canada's radio spectrum. The new policy should take into account the work completed by Industry Canada as part of its ongoing spectrum policy framework review, and should ensure that the following areas are addressed:**

**(a) availability of adequate spectrum to meet demand for deployment of fixed and mobile broadband networks across Canada,**

**(b) availability of licensed and licence-exempt spectrum for the U-CAN program recommended in this report,**

**(c) reliance on market-based approaches to spectrum management as much as possible,**

**(d) establishment of market-based exclusive spectrum rights (i.e. ability to buy, sell and lease spectrum holdings) and elimination of barriers to the development of secondary markets in spectrum,**

**(e) recovery and "refarming" of previously assigned spectrum that is unused or underutilized in order to accommodate new services,**

**(f) review of current licence fees to correct fee imbalances that may exist among service providers, separating where practical cost-recovery fees from those fees charged for the use of a limited public resource, and applying market-based pricing for non-auction licences,**

**(g) streamlining and standardization of licensing processes, and**

**(h) continued use of regulatory mechanisms such as spectrum caps (aggregation limits) where spectrum is scarce in order to provide an opportunity for new entrants to acquire spectrum and for Canadians to have an expanded choice of service providers.**

To ensure there is sufficient legislative authority to introduce the above changes, the *Radiocommunication Act* will need to be reviewed and amended to transfer spectrum regulation and licensing to the CRTC.

### Spectrum Management and Regulation

As discussed in Chapter 9, it should generally be the role of government to establish general policies, and the role of the telecommunications regulator to implement these policies in an independent and transparent manner. Currently, two different bodies regulate Canada's communications industry. The CRTC is responsible for regulating the telecommunications and broadcasting sectors, while Industry Canada is responsible for spectrum management and regulation, licensing of satellite and wireless communications services, and regulation of telecommunications equipment and devices. In addition to these regulatory responsibilities, Industry Canada is responsible for Canada's telecommunications policy, including its spectrum policy.

The current mix of policy making and regulatory functions within Industry Canada is something of an anomaly. Canada is one of the few OECD countries where a politically appointed minister remains responsible for spectrum licensing and management. This approach has been abandoned in the United Kingdom, Australia, the United States, most European countries and even in most developing countries. Of the 30 OECD countries, only six have ministries that retain this authority — Canada, Japan, South Korea, New Zealand, Austria and Italy (Table 5-1). More generally, there has been a trend over the past five years among Canada's major trading partners and the majority of OECD countries to transfer responsibilities that were formerly with government ministries to an independent regulatory authority. The key benefits of having an independent regulator include[24]:

- providing more stability in processes
- providing a greater degree of continuity
- allowing for arbitration
- having more effective enforcement powers
- freedom from political pressure.

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[24] OECD, *Telecommunication Regulatory Institutional Structures and Responsibilities*, DSTI/ICCP/TISP(2005)6/REV1; September 15, 2005, paragraph 8 (available online at: **http://www.oecd.org/dataoecd/56/11/35954786.pdf**):

> The preferred means to regulate the telecommunications sector for most OECD countries has been through an independent regulator. A number of reasons have been put forward in support of independent regulators: a regulator is preferred in many countries in that in principle it offers a greater degree of continuity (Majone 1997: 153; Gilardi 2002), a regulator often provides stability in processes and allows for arbitration and, in a number of cases, has enforcement powers. Furthermore, a regulator is often free from shorter-term political pressure and the regulatory body can develop a high level of expertise necessary to make decisions on complex questions (Baldwin and Cave 1999: 70).

Table 5-1. Spectrum Management and Licensing Responsibilities, OECD Countries

| **Country** | **Spectrum Management and Licensing Responsibility** | |
|---|---|---|
| | **Regulator** | **Ministry** |
| Australia | ✔ | |
| Austria | | ✔ |
| Belgium | ✔ | |
| Canada | | ✔ |
| Czech Republic | ✔ | |
| Denmark | ✔ | |
| Greece | ✔ | |
| Iceland | ✔ | |
| Ireland | ✔ | |
| Italy | | ✔ |
| Japan | | ✔ |
| South Korea | | ✔ |
| Luxembourg | ✔ | |
| New Zealand | | ✔ |
| Norway | ✔ | |
| Poland | ✔ | |
| Portugal | ✔ | |
| Slovak Republic | ✔ | |
| Sweden | ✔ | |
| Turkey | ✔ | |
| United Kingdom | ✔ | |
| United States | ✔ | |

Source: Derived from OECD, *Telecommunication Regulatory Institutional Structures and Responsibilities*, DSTI/ICCP/TISP(2005)6/FINAL, September 15, 2005, Table 8. Spectrum Management Responsibilities. Available online at: **http://www.oecd.org/dataoecd/56/11/35954786.pdf**

Increased convergence of wireless and wireline telecommunications and broadcasting technologies (e.g. developments such as wireless IP services, mobile TV cell phones, and satellite radio) has changed the context of telecommunications regulation. Because of an increasing need for coordination of regulation, many countries have adopted a more converged regulatory approach. Recent examples include the creation in 2003 of the U.K. Office of Communications (Ofcom), which is responsible for television, radio, telecommunications and wireless communications, and the creation in the same year of the Australian Communications and Media Authority (ACMA), merging the functions of the Australian Broadcasting Authority and the Australian Communications Authority.

The Panel believes, as Canada's major trading partners and the majority of OECD countries have recognized, that the increased convergence of wireless and wireline telecommunications and broadcasting technologies calls for a more consistent and unified regulatory approach. The functions of spectrum licensing, management and enforcement should be assigned to an independent regulator (the CRTC), which is mandated to use transparent procedures in implementing spectrum policy. A transfer of functions meets the increasing need for coordination and streamlining of spectrum, telecommunications and broadcasting regulation as these industries converge, and allows for the development of a high level of expertise capable of dealing with complex and increasingly interrelated issues.

The movement of Industry Canada's spectrum management and regulatory functions to the CRTC would clearly distinguish the role of government — which is to set national telecommunications policies — from the role of the regulator, which is to implement those policies in an independent and transparent manner. As discussed in Chapter 9, a clear division between policy-making and policy-implementing responsibilities should improve the capacity of Canadian government to develop telecommunications policies that respond to the rapidly changing environment. A greater separation between Canada's spectrum policy and regulatory functions has also been supported in a 2002 OECD analysis of Canada's telecommunications industry[25]:

> An argument can also be made that licence allocation, that is the regulation of market entry, should be the task of the regulator, the CRTC, whereas spectrum planning, a policy function, should remain with Industry Canada. There is no evidence that the present structure has caused any conflict. Nevertheless in that wireless communications is increasing in importance a differentiation between policy and regulation, as is the case for the rest of the industry, would be preferable.

A transfer of functions would also be consistent with the principles of the report titled *Smart Regulation*,[26] which states that regulators should strive for the least costly and least intrusive means to achieve policy objectives, avoiding overlap, duplication and inconsistency, minimizing the potential risks of unintended consequences and providing for enforcement that is commensurate with the risks and problems involved.

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[25] OECD, *Regulatory Reform in the Telecommunications Industry: Regulatory Reform in Canada from Transition to New Regulation Challenges* (Paris: 2002), p. 29. Available online at: **http://www.oecd.org/dataoecd/48/28/1960562.pdf**

[26] External Advisory Committee on Smart Regulation, *Smart Regulation: A Regulatory Strategy for Canada*, Report to the Government of Canada (Ottawa: September 2004). Available online at: **http://www.pco_bcp.gc.ca/smartreg_regint/en/08/rpt_fnl.pdf**

Additional advantages that would be gained by transferring Industry Canada's spectrum management and regulatory functions to the CRTC include improved transparency and due process, clarification and integration of responsibilities, increased international engagement and improved enforcement. Each of these advantages is discussed below.

### Transparency and Due Process

The CRTC is an independent regulator that follows a well-established, quasi-judicial process to decide matters put before it. This process is viewed as being open and transparent. The CRTC's processes are set out in its Rules of Procedure.[27] The CRTC conducts public proceedings that provide any interested party with an opportunity to participate. These public proceedings may include written comments, evidence and argument, an interrogatory process, as well as an oral hearing or a public consultation component, as appropriate. In addition, CRTC decisions are subject to appeal to the courts on matters of law and jurisdiction. The Panel recognizes that Industry Canada has increased the transparency of some of its processes by conducting public consultations on major policy and licensing decisions. The Panel is nonetheless concerned that the department's decision-making processes may be susceptible to lobbying by interested parties and political pressure. The Panel believes that moving Industry Canada's spectrum management and regulation functions to the CRTC will lead to increased transparency and ensure due process.

### Clarification and Integration of Responsibilities

Several participants in the Panel's consultation process noted that there is currently overlap and at times duplication between Industry Canada and the CRTC, which can lead to inefficiencies and inconsistencies. For example, both the CRTC and Industry Canada enforce the Canadian ownership and control requirements that an applicant must meet to be eligible to be a telecommunications carrier (a CRTC responsibility) and a radiocommunication carrier (an Industry Canada responsibility). Because of this, an applicant may be required to go through two separate processes, which potentially could lead to different conclusions. Another example is that anyone wishing to provide broadcasting services must currently apply to the CRTC for a broadcasting licence and to Industry Canada for a related broadcasting certificate regarding technical requirements.

It is not efficient to have applicants expend time and resources to deal with two different organizations to obtain interrelated authorizations. It is also not an efficient use of government resources. Significant efficiencies could be gained if all telecommunications regulation, including spectrum regulation, were integrated and implemented by a single regulatory body.

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[27] Available online at: **http://www.crtc.gc.ca/eng/LEGAL/TELEACT.HTM**

### International Engagement

The CRTC currently does not play any formal role in developing Government of Canada positions at the International Telecommunication Union (ITU) and in other international fora. The Panel notes that, while there may be discussions between Industry Canada officials and CRTC officials, much of the valuable information that Industry Canada obtains on global issues and trends through involvement in these international fora is often not shared with the CRTC. As a result, the CRTC is quite isolated from other national and international regulatory and policy-making institutions. The Panel believes the CRTC should be engaged with international processes and organizations in order to improve its relationship with the international community and expand its knowledge of international regulatory practices, technology developments and industry trends.

### Enforcement

Several submissions to the Panel noted that Industry Canada often shows a reluctance to enforce its licensing requirements, for example, by enforcing rollout commitments made by spectrum licensees as a condition of licence. If a licensee does not comply with its licence conditions, the department's primary enforcement tool is for the Minister to amend, suspend or revoke a radio authorization. This authority is seldom used because of the harshness of the penalty and the potential disruption of service to customers. The CRTC already has a variety of alternative enforcement tools available. In addition, as discussed in Chapter 9, the Panel is recommending that the CRTC's enforcement powers should be broadened to include the authority to impose administrative monetary penalties (AMPs). Moving Industry Canada's spectrum regulatory and management functions to the CRTC would thus provide access to a wider range of enforcement tools.

In summary, moving the functions of spectrum regulation and management to the CRTC will:

- avoid duplication, overlap and inconsistencies
- reduce administrative costs
- allow for harmonized processes
- provide more stability through open and transparent processes free from political pressure
- allow for the development of a high level of expertise able to deal with complex and increasingly interrelated issues
- strengthen CRTC relationships with the international regulatory community (e.g. the FCC and other national regulators, ITU, Inter-American Telecommunication Commission, CITEL) and improve CRTC staff knowledge of global issues and trends.

**Recommendation 5-10**

**The authority to regulate Canada's radio spectrum and to license its use should be transferred from Industry Canada to the CRTC.**

Broad responsibility for spectrum policy, as with all policy matters, should remain with Industry Canada. However, implementation of the policy should be exercised by the CRTC, in a professional, independent and transparent manner. This division of responsibilities should provide an opportunity for Industry Canada to enhance its capabilities to advise the government on telecommunications policy in an objective manner, separate from the regulatory and licensing body. The strengthening of Industry Canada's role in policy development is discussed in greater detail in Chapter 9.

Given that spectrum policy and regulation are highly interrelated, the Panel recommends developing broad spectrum policies by Industry Canada in consultation with the CRTC. How to best achieve a consultative mechanism, along with how to implement the transfer of the spectrum management and regulatory functions to the CRTC, will need to be considered prior to the transfer. For example, amendments will be required to the *Radiocommunication Act*, and amendments may also be necessary to the *Department of Industry Act* and the *Emergency Preparedness Act*. Prior to the amendments to the *Radiocommunication Act*, other issues related to the transition of functions and responsibilities from Industry Canada to the CRTC, such as funding, staffing and reporting structures, and logistics, should be addressed. The Panel recommends forming a joint working group to plan the transition and integration of the functions to the CRTC.

**Recommendation 5-11**

**Industry Canada and the CRTC should form a joint working group to plan the transition and integration of spectrum regulation, management and related functions to the CRTC, and to develop a mechanism for ongoing coordination between the two organizations on spectrum policy development.**

## Telecommunications Equipment

Currently the Governor-in-Council, the Minister of Industry and the CRTC each play a role in the regulation of telecommunications equipment and devices. As noted in the previous section of this chapter, the increased convergence of wireless and wireline technologies, and of telecommunications and broadcasting technologies, favours coordination and streamlining of the accompanying regulation.

The Governor-in-Council can make regulations setting standards for telecommunications apparatus (s. 69.4 of the *Telecommunications Act*) and for radiocommunication equipment and devices (s. 6 of the *Radiocommunication Act*). In practice, Industry Canada acts as the agency responsible for developing such standards. The Minister of Industry also has the power to grant technical acceptance certificates for telecommunications apparatus (s. 69.3 of the *Telecommunications Act*), to set technical requirements and standards for radiocommunication equipment and devices, and to issue licences and technical acceptance certificates in respect of such apparatus (s. 5 of the *Radiocommunication Act*).

The CRTC plays an ancillary role in the regulation of telecommunications equipment and devices via its regulation of telecommunications carriers and their services. The Commission can also regulate matters related to telecommunications equipment as part of its jurisdiction over network interconnection.

Many submissions to the Panel proposed that the regulation of technical equipment and devices should be amalgamated into a single regulatory body. The Panel believes consolidation of these functions will provide benefits by improving economic efficiency, reducing administrative costs, avoiding duplication and overlap, and providing consistency. The CRTC will also benefit from having the engineering and technical expertise of the Industry Canada staff who will be transferred with these functions. The Panel therefore recommends transferring these functions from Industry Canada to the CRTC to increase coordination and reduce unnecessary regulation.

**Recommendation 5-12**

**The regulation of telecommunications equipment and devices should be transferred from Industry Canada to the CRTC. The CRTC should continue to rely primarily on industry organizations to administer equipment certification programs, including authorized certification bodies.**

Several submissions to the Panel also noted that the Terminal Attachment Program Advisory Committee (TAPAC), which is currently coordinated by Industry Canada, is a useful forum for industry to discuss technical standards and to provide advice to the government on terminal equipment regulations. However, many noted that its role has diminished over the years and that it is becoming less relevant as the industry increasingly relies on North American and international standards. The Panel believes this program, as well as other telecommunications equipment programs, should be reviewed for relevance prior to being transferred to the CRTC. However, any move toward deregulation in this area should not reduce the responsibilities to protect Canadian consumers and to promote the competitiveness of Canadian industry. Maintaining these responsibilities will include ensuring that Canadian manufacturers' equipment is properly certified for the purposes of the mutual recognition agreements (MRAs) into which Canada has entered.

**Recommendation 5-13**

**Programs related to the regulation of telecommunications equipment and devices should be reviewed by Industry Canada prior to the transfer from Industry Canada to the CRTC to eliminate any unnecessary regulation.**

# 6 Chapter 6
# Social Regulation

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In this report, the term "social regulation" refers to regulatory policies and practices designed to achieve social policy objectives that may not be met through competitive market forces or economic regulation alone.

The statutory objectives recommended in Chapter 2, Policy Objectives and Regulation, have a significant social dimension. They reflect the Panel's view that social objectives should continue to have a central place in Canada's telecommunications policy. In Chapter 3, Economic Regulation, the Panel sets out the reasons it believes that market forces and new forms of economic regulation should be relied on to the maximum extent feasible to achieve Canada's telecommunications policy objectives, including those that have a social dimension. However, the Panel also believes there will be a continuing need for social regulation.

The Panel's policy objective as set out in Recommendation 2-2 — "to promote affordable access to advanced telecommunications services in all regions of Canada, including urban, rural and remote areas" — clearly has a social dimension. The Panel is convinced that in most parts of the country, competitive market forces operating within the new regulatory framework recommended in Chapter 3 will provide Canadians with affordable access to advanced services. However, the Panel also believes there are rural and remote areas where competitive market forces are unlikely to achieve this objective in the foreseeable future. To ensure affordable access to advanced services in some of these areas, it may be necessary to maintain traditional forms of economic regulation, at least for a period of time. In other areas, other forms of government intervention may be required.

Social regulation is not a matter for rural and remote areas of the country only. The third statutory policy objective of the Panel as set out in Recommendation 2-2 is "to enhance the social well-being of Canadians and the inclusiveness of Canadian society by facilitating access to telecommunications by persons with disabilities; maintaining public safety and security; contributing to the protection of personal privacy; and limiting public nuisance through telecommunications." The Panel believes new regulatory policies and arrangements are needed to achieve these goals, as well as to protect the interests of citizens and consumers, in the technologically transformed and increasingly competitive telecommunications environment described in Chapter 1, The Need for Change.

The achievement of social policy goals through government and regulatory intervention has been a central aim of telecommunications policy in the past. The Panel believes effective social regulation will remain a necessary complement to economic regulation in Canada's overall telecommunications policy as telecommunications markets become more innovative and competitive. The two should progress hand in hand as telecommunications becomes an increasingly important enabler of economic and social activities for all Canadians, and a key infrastructure for the delivery of government and public services.

However, just as economic regulation should be reformed, so should social regulation. The Panel recommends several new initiatives including:

- ensuring that affordable and reliable broadband services are ubiquitously[1] available in all regions of Canada, including urban, rural and remote areas, by 2010 at the latest
- codifying an obligation for all incumbent telephone companies to provide basic telephone services in areas where they have available network infrastructure, unless or until the CRTC has determined that universal access to basic telecommunications services is likely to be achieved through market forces
- establishing a new "ombuds office" to be called the Telecommunications Consumer Agency (TCA) with authority to resolve complaints from individual and small business retail customers of any telecommunications service provider
- establishing a new "consumer right of access" to Internet applications and content.

The initiative to provide ubiquitous access to broadband telecommunications services is discussed in Chapter 8, Connectivity. The other recommended initiatives are described in the following sections. In addition, this chapter addresses the relationship between the CRTC and the Privacy Commissioner.

## The Obligation to Serve

### Existing Obligations

In the past, the obligation of incumbent monopoly service providers to provide service to all customers in their territories was a central element of public utility regulation. In markets that have become increasingly competitive, the question arises whether an "obligation to serve" should continue to be placed on former monopoly service providers. More generally, the question arises whether the incumbent telephone company in every serving territory should be legally obliged to provide basic telecommunications services subject to the availability of network infrastructure.

The CRTC addressed this question when it established a framework for local competition in 1997.[2] The Commission concluded that it would not be appropriate to designate one carrier as having "carrier of last resort" responsibilities in markets characterized by effective facilities-based competition. However, the Commission also concluded that market forces alone would not achieve the statutory objective set out in ss. 7(b) of the *Telecommunications Act* "to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada." In other words, the CRTC concluded that an obligation to serve should continue to be placed on incumbent carriers in markets where effective facilities-based competition had not developed.

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[1] As discussed in Chapter 8, Connectivity, the challenge of achieving ubiquitous access to telecommunications networks is ongoing and for the purposes of ubiquitous availability of broadband service, the Panel believes Canada should aim to realize levels comparable with the achievements in voice telecommunications.

[2] *Local Competition*, Telecom Decision 97-8, May 1, 1997.

Although the CRTC continues to impose an obligation to serve[3] on incumbent carriers in non-competitive markets, only Bell Canada has an explicit statutory obligation, which is set out in s. 6 of the *Bell Canada Act*.[4] The CRTC has not applied the obligation to serve to new entrants.[5]

What exactly is entailed in the obligation to serve?

In 1999 the CRTC set out the following basic service objective for local exchange carriers[6]:

- individual line local service with touch-tone dialing, provided by a digital switch with capability to connect via low-speed data transmission to the Internet at local rates
- enhanced calling features, including access to emergency services, Voice Message Relay service and privacy protection features
- access to operator and directory assistance services
- access to the long distance network
- a copy of a current local telephone directory.

In making this determination, the CRTC noted that the basic service objective may change over time as service expectations evolve.[7] However, there have been no changes to date.

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[3] The incumbent telephone carrier's obligation to serve is not absolute. It is generally obligated to provide service in areas where it already provides service, but the CRTC-approved Terms of Service set out qualifications where an incumbent telephone carrier does not have to provide service to potential customers applying for service. Bell Canada's tariffs state the following with regard to exemptions from the obligation to serve:

- Bell Canada would have to incur unusual expenses for which the applicant will not pay; for example, securing rights-of-way or for special construction
- the applicant owes amounts to Bell Canada that are past due other than as a guarantor, or
- the applicant does not provide a reasonable deposit or alternative required pursuant to the Terms of Service.

[4] Subsection 6(2) of the *Bell Canada Act* provides exceptions to the obligation to serve where:

- the premises for which the service is requested are not fronting on a highway, street, lane or other area along, over, under or on which the Company has a main or branch telephone service or system; and
- the telephone on the premises would be situated more than 62 metres or such other distance as the Commission may specify from the highway, street, lane or other area.

[5] There is a reference with regard to the obligation to serve in the tariffs for the interconnection services of competitive local exchange carriers (CLECs). Since the introduction of local competition, CLECs have been required to file tariffs that set out the rates, terms and conditions for the provision of interconnection services to other telecommunications service providers. In this regard, a model tariff was developed for use by CLECs. While the CLEC tariffs are limited to the interconnection services that CLECs are required to provide to other local exchange carriers, interexchange service providers and wireless service providers (pursuant to *Local Competition*, Telecom Decision CRTC 97-8, May 1, 1997), there is a reference in the tariffs that such services are provided pursuant to an obligation to serve. The most recent version of the model tariff, version 24, is available on the CRTC's website at: **http://www.crtc.gc.ca/cisc/COMMITTE/C-docs/clecv24_e.doc**

[6] *Telephone Service to High-cost Serving Areas*, Telecom Decision CRTC 99-16, October 19, 1999, para. 24. Available online at: **http://www.crtc.gc.ca/archive/eng/Decisions/1999/DT99-16.htm**

[7] *Ibid.*, para. 25.

## Codifying the Obligation to Serve in a Competitive Environment

Historically, the central goal of social regulation — universal access to affordable services — was achieved by imposing an obligation to serve on incumbents and funding this obligation through a complex set of cross-subsidies within the telecommunications industry. Today, only residential service in high-cost serving areas is subsidized through a national, revenue-based contribution collection mechanism that applies to all telecommunications service providers (TSPs).[8] This approach is designed to pursue the social objective of universal access at affordable prices while minimizing the costs in terms of lost efficiencies.[9]

The Panel believes the *Telecommunications Act* should be amended to impose a clear obligation for all incumbents to serve, subject to the availability of network infrastructure. An incumbent should be relieved of its obligation to serve only with the permission of the regulator. Before authorizing the removal of the obligation in any given market or location, the regulator should consider the social impacts as well as the availability of adequate substitutes from other service providers.

In cases where permission to discontinue an obligation to serve includes the abandonment of existing service provision, the Panel sees merit in adopting a regulatory approach used in the rail transportation sector. Under this approach, the CRTC could direct an incumbent telephone company wishing to abandon service to an area to offer its facilities for sale to other service providers or new entrants.

In cases where the CRTC rejects a proposal from an incumbent local exchange carrier (ILEC) to discontinue service but determines that continuing to provide the service would be uneconomical, the Panel considers it appropriate for the CRTC to allow the ILEC to recoup the net losses incurred as a result of continuing to provide service from the existing contribution regime.

### Recommendation 6-1

**The *Telecommunications Act* should be amended to impose a clear obligation on incumbent telephone companies to provide basic telephone service in areas where they have available network infrastructure. Approval by the CRTC should be required for an incumbent telephone company to abandon such basic telephone service.**

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[8] The current contribution regime was implemented by the CRTC in *Changes to the contribution regime*, Decision, CRTC 2000-745, November 30, 2000. Available online at: **http://www.crtc.gc.ca/archive/ENG/Decisions/2000/DT2000-745.htm**

[9] This issue is discussed in greater detail in Chapter 3, Economic Regulation.

## The Telecommunications Consumer Agency

### Why a New Agency Is Needed

Over the years, the telecommunications industry has evolved from one in which a relatively limited range of services was provided, mainly by monopolies, to one in which an expanding array of services are provided by an increasing number of competitors. As discussed in Chapter 2, many of the services provided by Canada's telecommunications industry are not currently subject to the CRTC's jurisdiction.

In a competitive environment, a customer who has a problem that could not be resolved with a service provider may be expected to simply switch to another service provider. In the case of a serious dispute, the customer may seek redress from the courts. However, there are a number of reasons why consumers may be unable or unwilling to do this. Contracts with service providers may require payment of substantial charges in the event of early termination. Many Canadians are reluctant to go to the courts, either because of the time and expense involved or because they find the judicial process confusing and intimidating. In addition, in today's complex, competitive telecommunications environment, new kinds of consumer problems are arising that are not specific to particular service providers, but may affect the industry as a whole and its customers. These new problems involve issues such as email spam, computer viruses, "spyware" and "phishing."[10]

Telecommunications services are becoming more pervasive and increasingly complex for consumers, whether they involve wireline or wireless voice communications, or Internet services. The Panel believes a new agency, to be called the Telecommunications Consumer Agency (TCA), should be established to protect the interests of Canadian consumers in this new environment. With the structure, mandate and resources described below, the TCA will have the powers and capabilities required to address these issues effectively without duplicating the roles and responsibilities of existing organizations, and without increasing the regulatory burden on the telecommunications industry.

**Recommendation 6-2**

**A new Telecommunications Consumer Agency should be established with authority to resolve complaints from individual and small business retail customers of any telecommunications service provider.**

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[10] This issue is discussed in Chapter 7, Information and Communications Technology Policy.

## Establishing a Telecommunications Consumer Agency

### Current Mechanisms

In recent years, the CRTC has made significant progress in reducing the time it takes to resolve disputes between competing TSPs, notably through its expedited dispute resolution process. This has won well-deserved praise from the industry.

The Panel believes similar improvements should be made to mechanisms for resolving complaints from individual and small business retail customers, including not-for-profit organizations. This will be an increasingly important concern as Canada's telecommunications policy places greater reliance on market forces and *ex post* forms of regulation.

When the CRTC receives a complaint from an individual customer, it forwards the matter to the affected service provider for explanation and possible resolution. If the complaint concerns a regulated service, such as local telephone service, CRTC staff also attempt to assist in the resolution of the problem. If these mechanisms are unsuccessful, a more formal proceeding involving the commissioners can be launched. However, this can be a time-consuming and expensive process. It may be intimidating for a customer and may not be an efficient way to allocate resources for an authority whose mandate is focused on the regulation of service providers and not on the investigation of consumer complaints. Moreover, the cost of this relatively cumbersome process may be out of proportion to the relief that is being sought, which may involve nothing more than an apology or the correction of a billing error. In addition, under the current legislative regime, any remedies mandated by the CRTC are generally limited to future actions rather than to the redress of past grievances.

The Panel believes the TCA will help resolve customer complaints and related disputes with service providers. A properly designed ombuds office should be less intimidating to customers and should resolve disputes in a less formal and less time-consuming manner than current arrangements. Over time, it could develop an expertise not found in the courts. Unlike the CRTC, the TCA could focus on specific complaints from individuals and small business retail customers. In addition, the TCA's mandate could include unregulated telecommunications and telecommunications services offered by entities that are not subject to CRTC jurisdiction.

### Models from Other Jurisdictions

Both the Australian and United Kingdom telecommunications industries have ombuds offices — in fact, the U.K. has two separate and competing agencies. Membership in the Australian office is compulsory for all telecommunications carriers and eligible service providers. In the U.K., membership in an ombuds office is voluntary. However, every service provider, including Internet service providers (ISPs), must offer independent alternative dispute resolution (ADR) to its residential and small business customers, and the ADR scheme must be approved by the regulator.

In the U.S., at the federal level there is a bureau within the Federal Communications Commission (FCC) that carries out many of the functions of an ombuds office. Similar in-house organizations operate within a number of state telecommunications regulators.

In Canada, the Ombudsman for Banking Services and Investments (OBSI) is an independent organization, established to investigate unresolved complaints from small business customers and retail customers of banks, investment dealers, mutual fund dealers and investment fund companies.

After reviewing these models, the Panel concludes that they contain a number of useful features that should be included in the design of the TCA.

### Status

The Panel considers that a self-funding, independent, industry-established agency, created specifically to address customer complaints, is the most appropriate model.[11] Greater reliance on the private sector for dispute resolution is one of the themes of this report; an independent industry office is consistent with that approach.

The Panel envisages an agency whose governing board includes representation from the industry, consumer groups and independent individuals and is headed by an independent chief executive officer. However, the Panel recommends leaving the issue of how best to achieve the TCA's independence up to the CRTC to determine. It notes that the CRTC has had considerable experience in the broadcasting sector in determining whether various production funds were independent of the broadcasters that established them.

> **Recommendation 6-3**
>
> **The proposed Telecommunications Consumer Agency should be a self-funding, independent, industry-established agency. The agency's structure and functions should be determined by the CRTC.**

The Panel believes that, in order for the TCA to be effective, membership in it should be compulsory for all TSPs. The Panel recommends in Chapter 2 amending the *Telecommunications Act* to grant the CRTC jurisdiction over all TSPs. This amendment should enable the CRTC to require TSPs to become members and to comply with the rules of the TCA.

> **Recommendation 6-4**
>
> **All telecommunications service providers should be required to be members in good standing of the proposed Telecommunications Consumer Agency.**

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[11] This was the model adopted in the recently enacted telecommunications legislation in both Australia and the U.K. The Panel considers s. 52 to 55 of the U.K. *Communications Act 2003*, 2003 Chapter 21, to be a good starting point for such an approach (available online at: **http://www.opsi.gov.uk/acts/acts2003/20030021.htm**). The issue of funding is addressed below.

### Funding

The Panel believes an industry-established agency should also be funded by the industry, rather than by taxpayers generally or from a portion of the CRTC's annual budget. If TSPs are responsible for the cost of administering the agency and paying compensation awards that it grants, it is reasonable to expect that members will be vigilant in addressing systemic problems or repeated claims against specific TSPs. In addition, industry funding maintains the arm's-length relationship between the TCA and the CRTC.

There are a number of funding options that could be considered, ranging from membership assessments based on gross revenues from telecommunications services, to assessments based on claims made to the agency, to a combination of both models. In addition, the industry may wish to consider funding that promotes good customer relationships and rapid resolution of disputes. How the agency is funded can be decided by the industry. However, the CRTC should be satisfied that funding is sufficient for the TCA to operate and to carry out its mandate.

### Authority

The Panel recommends giving the TCA authority to respond to complaints involving any telecommunications service provider, with respect to all services offered by them. This includes regulated and unregulated telecommunications services, as well as services offered by ISPs that are not currently subject to CRTC jurisdiction. It is important to note that, in the Panel's view, ISPs and other service providers that are not currently subject to CRTC regulation should not, by virtue of the proposed TCA, become subject to any regulatory requirements other than those necessary to ensure compliance with any decision made by the TCA.

The Panel envisages that the TCA will focus principally on complaints from individual customers concerning the non-price aspects of telecommunications services. It will not have authority to consider:

- matters relating to telecommunications equipment
- matters of a more general regulatory or policy nature, such as the universal service obligation, inside wiring or tariff approvals
- content
- matters falling under the jurisdiction of another body (e.g. anti-competitive practices).

In the event that complaints to the TCA indicate systemic problems within the telecommunications industry or a pattern of problems with respect to the services provided by a specific operator, the TCA should present these findings in its annual report. Furthermore, it should refer to the CRTC significant or recurring problems that cannot be satisfactorily resolved based on complaints from individual consumers. To assist the TCA in tracking and analyzing patterns of complaints, the agency should be empowered to conduct research and analysis into significant or recurring consumer problems.

The Panel believes the TCA should have the authority to include any recommendations it considers appropriate when referring a matter to the CRTC. However, any further investigation and enforcement should be left to the regulator. The Panel is concerned that if the TCA is given any broader investigative powers, it might begin to duplicate some of the activities of the CRTC, especially in the areas of quality of service, or to create potentially inconsistent or overlapping compliance regimes. To ensure that a reference from the TCA is promptly addressed, the Panel recommends requiring the CRTC to respond publicly within six months of receipt of the reference.

### Complainants

The Panel recommends allowing any individual or small business retail customer, including not-for-profit organizations, to lodge a complaint with the TCA. The agency's primary purpose should not be to assist large business customers, who can generally be expected to have the skills and resources needed to protect their interests before and after entering into a contract with a telecommunications service provider.[12] The Panel would be concerned if large enterprises brought matters to the TCA with the result that the agency's resources were strained, and smaller users were obliged to wait longer times for their complaints to be addressed. Setting a relatively modest limit on compensation, as discussed below, should aid in ensuring that this does not happen. Disputes between TSPs should continue to be addressed by the CRTC.

The TCA should have authority to refuse to accept a complaint on the basis that:

- it shows no apparent cause of action
- it is being adjudicated in another forum
- it is being brought by an entity that should more properly pursue its claim elsewhere.

### Process

The Panel recommends requiring TSPs to publicize the TCA service in billing materials on a regular basis and to set out in plain language the process that customers should follow in seeking assistance from the agency. Service providers should also be required to inform their customers that TCA service is free of charge and that there are different ways to contact the agency, such as by toll-free telephone number, toll-free fax line, email, regular post or online access via the TCA home page.

The role played by the TCA should be seen as part of a continuum of activities designed to resolve customer complaints. The first course of action should remain good faith efforts on the part of the affected parties to reach an acceptable resolution without outside intervention. Before accepting a request for assistance from a customer, the TCA should first satisfy itself that this has occurred. Once it has accepted a request for assistance, the TCA should initially play the role of mediator. If matters proceed beyond mediation, the TCA should have adequate investigative powers to gather sufficient information to form a complete record upon which to base a decision. Failure by a service provider to cooperate in this process should be grounds for an award in favour of the complainant.

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[12] The matter of defining eligible complainants more precisely can be left to the industry to work out in conjunction with the CRTC and representatives of consumer interests.

### Dispute Resolution Powers

In examining what kinds of dispute resolution powers should be given to the TCA, the Panel considered the following options:

- making non-binding recommendations to the parties
- issuing a decision that is binding on both complainant and service provider
- issuing a decision that is non-binding unless and until the complainant accepts it, in which case it becomes binding on both parties.

The first option is the one adopted by the OBSI and it relies on the powers of moral suasion and potentially adverse publicity if the service provider fails to abide by the recommendation. However, the Panel considers this option as falling short of accomplishing the goal of providing effective relief with respect to customer complaints. Some service providers may be tempted not to treat the process seriously, while others may be indifferent to the prospect of adverse publicity. In those cases, the complainant may well be left with no recourse other than the courts.

The principal drawback of the second option is that potential complainants may be reluctant to bring their cases forward if they perceive that they may be obliged to accept an unsatisfactory binding decision. This could be particularly important if the result also precluded any alternative recourse to the courts.

The third option is the model that has been adopted in both Australia and the U.K. The Panel recommends it as being most in keeping with the concept that the TCA should be a telecommunications ombuds office. It gives the complainant the flexibility to accept a decision and conclude the matter at that point, or to reject it and pursue other alternatives such as court action. It also prevents a service provider from being able to oblige the complainant to take additional steps, such as court action or further appeals, when the practical result may simply be abandonment by the complainant.

The Panel recommends giving the TCA authority to make decisions encompassing both monetary and equitable relief. The latter could include a requirement for the service provider to offer an explanation or apology, or to undertake to do or cease doing specified activities with respect to the complainant (e.g. to correct recurring billing errors). In addition, the TCA should have limited authority to award monetary compensation to the complainant, if justified by the circumstances. The Panel believes there should be a relatively modest limit established for such compensation; the TCA should not have the power to award punitive or exemplary damages, as that is a matter more appropriately left to the courts. Taking into account the U.K. limits on mandatory awards of £5000 and Australian limits of A$10 000, the Panel believes the TCA should be granted authority to award compensation up to $10 000.

The Panel believes amendments to the *Telecommunications Act* will be needed to give the CRTC power to create the TCA and to give the agency the power to make binding orders and to award compensation. However, if properly constructed, the TCA will receive its mandate and exercise its authority as a matter of contract with member service providers. Part of the CRTC's role in approving a structure for the TCA could presumably include an assessment of the range of relief that the TCA could award customers of TSPs. Most customer complaints will involve allegations of breach of contract to provide a certain quality of service. If the industry does not give the TCA the right to award a realistic level of compensation for well-founded complaints, the Panel believes the CRTC will be unlikely to conclude that the TCA is sufficiently independent.

Finally, the Panel notes it will be important to ensure that there are effective remedies to enforce compliance with the TCA's orders and awards. The Panel considers it would be appropriate for the CRTC to be empowered to use administrative monetary penalties (AMPs) to enforce such compliance, if other remedies are not effective. The Commission's AMP powers are discussed in Chapter 9, Policy-making and Regulatory Institutions.

### Reports and Reviews

The Panel recommends requiring the TCA to issue an annual report setting out statistics on the number and type of complaints considered and their disposition. The report should be provided to the Minister of Industry and to the CRTC and should be made available on the TCA's website. In addition, the TCA should have the powers to publish reports as required and to identify issues or trends that in its view warrant the attention of the CRTC. In keeping with the Panel's recommendations regarding a review of legislative instruments, the actual operation of the TCA should be formally reviewed by a person or persons designated by the Minister every five years.

## Relationship between the CRTC and the Privacy Commissioner

In its Consultation Paper, the Panel asked whether changes are required to the regulatory framework for protecting privacy relative to telecommunications services. This framework is currently administered by the CRTC and the Privacy Commissioner. The CRTC's authority is set out in the *Telecommunications Act*, which includes both the policy objective of contributing to the protection of the privacy of persons (para. 7(i)) and the CRTC's authority with respect to unsolicited telecommunications (s. 41). The Privacy Commissioner's authority with respect to the private sector[13] is derived from the *Personal Information Protection and Electronic Documents Act* ("PIPEDA"), an act of general application that sets out the privacy rights of individual Canadians.[14]

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[13] The Privacy Commissioner's authority with respect to government institutions is derived from the federal *Privacy Act*, R.S.C. 1985, c. P-21, available online at: **http://laws.justice.gc.ca/en/P-21/94799.html**

[14] PIPEDA available online at: **http://laws.justice.gc.ca/en/P-8.6/text.html**

### Legislative Mandates

In the Panel's view, the CRTC and the Privacy Commissioner have complementary roles regarding privacy protection.[15] The CRTC has jurisdiction over privacy issues related to the operation of telecommunications networks — an area where knowledge of telecommunications technology and operations is particularly important and may facilitate resolution of issues. Abuses of mobile number databases, which were originally made available to facilitate roaming but which can also be used to keep track of an individual's movements, are one example of the kinds of privacy issues that fall under the jurisdiction of the CRTC. Complaints concerning the identification of callers, either by name or by number, and mechanisms to block such identification are another.

In contrast, the Privacy Commissioner has jurisdiction over issues that arise primarily from abuses of business practices and commercial conduct. For example, the unauthorized collection, use or disclosure of customer information from common commercial sources such as billing records fall to the Privacy Commissioner.

Division of responsibility in this way — according to the respective statutory responsibilities and expertise of the two bodies — is consistent with the Panel's recommendations on institutional arrangements in Chapter 9, Policy-making and Regulatory Institutions.

### Changes to CRTC Mandate

Against this background, the Panel believes some changes to the CRTC's mandate are desirable. In Chapter 2, the Panel notes that the CRTC's jurisdiction is largely confined to regulating "Canadian carriers," which by definition excludes TSPs that do not own or operate their own transmission facilities. The CRTC has taken steps to establish an indirect form of regulation over TSPs by imposing certain obligations in the tariffs of Canadian carriers that provide TSPs with underlying services and facilities.

Indirect regulation can be particularly troublesome in the case of privacy. A regulatory breach may cause harm through disclosure that cannot properly be compensated by an award of damages, and indirect regulation may not give the CRTC the ability to take appropriate corrective action.

In the Panel's view, Recommendation 2-6, which states that the CRTC be empowered to directly regulate all TSPs to the extent necessary to implement the Canadian telecommunications policy objectives, will ensure that any such CRTC regulation is direct and more easily enforceable.

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[15] The Panel is aware that a mandated review of the PIPEDA is to commence in 2006, which may address issues such as the relationship between the Privacy Commissioner and the CRTC.

The Panel reviewed the existing privacy regime to ascertain whether it is unduly burdensome in terms of impeding regulated TSPs from operating in an efficient manner. One of the Panel's overall themes in this report is to recommend the reduction or elimination of regulation, where it concludes that there is no useful purpose served or that the initial reason for implementing the regulation has disappeared. Another overall theme is to recommend clear distinctions or "bright lines" between the responsibilities of different regulatory authorities wherever it is reasonable to do so. In light of these considerations, the Panel finds no compelling reason to recommend any changes in the legislative mandates of the CRTC and the Privacy Commissioner.

## Access to Internet Content and Applications

As discussed in Chapter 1, the widespread adoption of Internet Protocol technology is leading to an increasing separation between the applications and content layers of telecommunications services, as well as between these layers and the underlying network layers that provide physical connections and transport services. The result of this trend has been a fundamental change in the structure of the telecommunications industry. Content providers do not need to be applications or network providers and applications providers no longer need to be network providers.

At the same time as these changes have taken place, there has been a tremendous increase in consumer demand for telecommunications services — particularly for the retail services offered by ISPs that provide access to the enormous range of applications and content available on the public Internet. Customers of these services usually expect to be able to access legally permitted applications and content of their choice. Recently, however, concerns have arisen that this may not always be the case, as a result of the technical capability of network operators and providers of retail Internet services to block or degrade access to certain types of applications or content.[16]

In response to these concerns, the U.S. Federal Communications Commission (FCC) recently adopted a policy statement (FCC 05-151, adopted August 5, 2005) outlining a number of principles intended "to encourage broadband deployment and preserve and promote the open and interconnected nature of [the] public Internet." It includes the principles that:

- consumers are entitled to access the lawful Internet content of their choice
- consumers are entitled to run applications and services of their choice, subject to the needs of law enforcement.

Although a policy statement of this kind does not establish enforceable rules, the FCC has indicated that it will incorporate these principles into its ongoing policy-making activities. The statement also indicated that all of the enunciated principles were subject to reasonable network management considerations.

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[16] In this section, we use "blocking" as shorthand to denote both absolute blocking and degradation that is serious enough to affect the desirability of an application or content.

In view of these developments, the Panel believes Canada's telecommunications policy and regulatory framework should include provisions that confirm and protect the right of Canadian consumers to access publicly available Internet applications and content of their choice by means of public telecommunications networks that provide access to the Internet. However, because consumer access issues are complex and rapidly evolving, the Panel also believes it is important to distinguish between various kinds of concerns that arise in relation to consumer access, and to address them through the most appropriate regulatory mechanisms. These concerns include:

- first, concerns arising as a result of anti-competitive conduct
- second, concerns arising as a result of business decisions taken in the context of normal commercial business practices
- third, concerns arising from decisions taken for non-commercial reasons.

The Panel believes the first type of concern should be addressed through the regulatory mechanisms recommended in Chapters 3 and 4 for dealing with other forms of anti-competitive conduct.[17] The usual tests would apply, and no new issues would arise.[18]

With respect to the third type of concern, non-commercial reasons for blocking access could include legitimate legal prohibitions, for example, national security, child pornography or other criminal concerns. Restrictions on access might also arise because of copyright. In such cases, the Panel believes that blocking access would be legitimate because the access provider would merely be implementing the law. In other cases, however, the access provider might be engaging in censorship. In a recent example, a large telecommunications service provider blocked access by its Internet customers to websites critical of the company.[19] In general, the Panel believes that blocking access to content and applications should not be permitted unless legally required.

The Panel believes the most difficult regulatory issues related to consumer access are likely to be those arising as a result of normal, ordinary business decisions that effectively limit or deny access to applications or content, even though they do not involve anti-competitive conduct, legally prohibited applications and content, or illegitimate forms of censorship. In some cases, there may be sound business reasons for blocking access to applications and content or degrading service. In other cases, these business practices may exploit customers unreasonably.

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[17] For example, refusal to enter into peering arrangements could be treated under the provisions governing interconnection of networks.

[18] For examples where an access provider with significant market power in the market for access might try to leverage that significant market power by trying to control the market for applications, see J. Farrell and P. Weiser, "Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age" (2003), 17 *Harvard J. Law & Tech.* 86 at 107. The authors note that "heavy-handed" regulation of access can itself be an incentive to monopolize related unregulated markets, such as applications.

[19] See CBC News at: **http://www.cbc.ca/story/canada/national/2005/07/24/telus-sites050724.html**

One simple example of the issues involved in distinguishing between acceptable and unacceptable limitations on consumer access arises in relation to applications or content that require large amounts of capacity on the access provider's network, for example, streaming video. If a sufficiently large number of customers access such an application simultaneously, the level of service for everyone may deteriorate to an unacceptable level. Providing additional capacity may not be feasible in the short run. Even in the longer run, extra capacity is costly, and the prices currently paid by access customers may not justify the necessary investments to expand network capacity. In such a case, an access provider might decide for business reasons to block access to the relevant application, or allow access only to those customers prepared to pay a premium for the service.

More generally, some customers may be willing to accept reduced access in exchange for lower prices. Conversely, other customers may be willing to pay a premium for a higher grade of service. It is common business practice to offer a range of levels of service at prices that reflect the differences.

A more difficult example arises when an access provider chooses whether or not to offer its customers access to news groups and, if so, to which news groups.[20] Supplying access to news groups entails costs. It requires operating news servers and accommodating the resulting traffic. From the point of view of the access provider, this may be strictly a business decision that turns on whether the cost of providing the service is justified by the added value it offers customers, as reflected in the price they are willing to pay for the service. From the point of view of some customers, however, a decision to omit or drop certain news groups or to raise the price of access may be perceived as high-handed and capricious by customers interested in those particular groups.

Even more difficult questions arise when an access provider enters into an arrangement with an application provider to give preferential access to that provider's applications. For example, an Internet access provider may give priority to instant messages carried by one system and degrade instant messages carried by other systems to the point where they are difficult to use, so as to encourage customers to switch instant messaging systems. Access providers thus leverage their market power in the Internet access market to try to extract more profit, either directly or in partnership with a preferred third party, in the applications market.[21]

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[20] There are hundreds of thousands of news groups, most of them of purely local or highly specialized interest.

[21] This situation has some similarities to the long distance market before 1994. To use new entrants' long distance services, customers had to dial special numbers and access codes, sometimes amounting to a dozen or more extra digits than when using the incumbent's long distance service. This difference in ease of access was removed for customers of ILECs and CLECs when these were ordered to provide pre-selection of a long distance carrier, known in Canada as Equal Access. Note that a service provider is not obliged to provide Equal Access to its customers, and mobile service providers in Canada still do not do so, in general. Such a service provider then forfeits the advantages that go with being a CLEC, as discussed in the last section of Chapter 3.

In theory, the marketplace should take care of customers' interests in such situations. If customers feel strongly about restrictions on their ability to access other applications or content, they will make their feelings felt by switching either to another access provider or to a substitute application. However, if all access providers in a market decide to enter into such preferential arrangements, customers may be deprived of a real choice. In such a case, regulatory intervention to ensure a form of equal access to the application in question may be desirable.

The Panel believes in most cases network operators and ISPs will have little or no incentive to interfere with customer access. However, open access is of such overriding importance that its protection justifies giving the regulator the power to review cases involving blocking access to applications and content and significant, deliberate degradation of service.

Given the complexity of this area, the rapid evolution of technologies and the market dynamics, the Panel believes the regulator here should have more discretion than in other areas of regulation. However, the Panel also believes this discretion should be exercised with a view to encouraging reliance on market forces and customer choice as much as possible. For example, there may be situations in which a customer wants an ISP to block access to particular applications or content. In addition, some customers may be willing to accept a reduced degree of access in exchange for a lower price. Such consumer choices should be respected.

In the Panel's view, the purpose of a customer access rule should be consumer protection, and there should be a strong emphasis on ensuring that customers have the information required to make informed choices. In this way, the rule would promote the efficient operation of market forces.

**Recommendation 6-5**

**The *Telecommunications Act* should be amended to confirm the right of Canadian consumers to access publicly available Internet applications and content of their choice by means of all public telecommunications networks providing access to the Internet. This amendment should**

**(a) authorize the CRTC to administer and enforce these consumer access rights,**

**(b) take into account any reasonable technical constraints and efficiency considerations related to providing such access, and**

**(c) be subject to legal constraints on such access, such as those established in criminal, copyright and broadcasting laws.**

7

## Chapter 7

# Information and Communications Technology Policy

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In Canada and throughout the world, information and communications technologies (ICTs) have emerged as significant drivers of economic and social change. Much as the printing press and steam engines did in the past, ICTs are enabling general purpose technologies.[1]

### What Are Information and Communications Technologies?

ICTs encompass a wide variety of products and services, including computers, software, communications equipment and networks, fibre optics, interactive video, satellite infrastructure and services, radio frequency identification technology, and a growing number of complementary devices for work, education, health and entertainment. The list of ICTs is ever-expanding. The Internet is increasingly the dominant ICT technology platform.

**ICT investment** is defined by Statistics Canada to include investment in computer equipment, communications equipment and software (which in turn is broken down into off-the-shelf, customized and own-account components). It is important to note that ICT investment does not include silicon chips embodied in other goods.

Statistics Canada defines **the ICT goods and services producing sector** as "the combination of manufacturing and services industries, which electronically capture, transmit and display data and information."[a]

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[a] Statistics Canada, "Canada's Journey to an Information Society," Catalogue no. 56-508-XIE, December 2003, p. 3. Available online at: **http://dsp-psd.pwgsc.gc.ca/Collection/Statcan/56-508-X/56-508-XIE2003001.pdf**

In the private sector, ICTs are being used to change how businesses are organized, operate and manage relations with customers. In the public sector, ICTs are being used to change the way services are delivered and governments interact with citizens. In communities and throughout society, ICTs are being used to change how people learn, work, communicate, create and are entertained.

Telecommunications networks provide the infrastructure for linking ICTs and enabling these changes. The technology and market trends described in Chapter 1, The Need for Change, are creating an expanding range of opportunities for Canadians to generate wealth, improve the efficiency of public services and enhance the quality of their lives. At the same time, these trends are challenging policy makers to ensure that all Canadians have access to ICTs, and that the interests of citizens and consumers are protected in the rapidly transforming telecommunications environment.

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[1] For a full exploration of the nature and economic impact of general purpose technologies, see Richard G. Lipsey, Kenneth I. Carlaw and Clifford T. Bekar, *Economic Transformations — General Purpose Technologies and Long Term Economic Growth* (Oxford, UK: Oxford University Press, 2005). These authors have written that general purpose technologies (GPTs) share some important common characteristics:

> They begin as fairly crude technologies with a limited number of uses and they evolve into much more complex technologies with dramatic increases in the range of their use across the economy and in the range of economic outputs that they help to produce. As they diffuse through the economy, their efficiency is steadily improved. As mature technologies, they are widely used for a number of different purposes, and have many complementarities in the sense of cooperating with many other technologies. (pp. 12–13)

The Panel believes the new policy and regulatory frameworks recommended in Chapters 2 to 6, the streamlined institutional arrangements recommended in Chapter 9, and the more open approach to foreign investment proposed in the Afterword will stimulate competition and strengthen market forces in the telecommunications sector. The Panel believes these forces will drive the Canadian telecommunications industry to develop world-class networks and services that fully integrate ICTs and make them available to Canadian businesses and consumers at competitive prices. At the same time, the Panel is persuaded that more is required to realize the full potential of ICTs.

A number of submissions to the Panel suggested that a national strategy is needed to ensure that Canada obtains maximum economic and social benefits from ICTs. In particular, several respondents suggested that we must make better use of ICTs to enhance the productivity and competitiveness of the Canadian economy, as well as to improve the quality and efficiency of government and public services. Because of the importance of these issues, a number of submissions proposed that the federal government should take responsibility for leading the development of a national ICT adoption strategy in partnership with other stakeholders.

The Panel agrees that it is essential for Canada to develop a national ICT adoption strategy. Consistent with the approach taken to the other issues it was asked to address, the Panel believes this strategy should rely on market forces to the maximum extent possible. Government intervention should take place only when market forces alone are unlikely to achieve economic and social objectives. As in the case of telecommunications regulation and broadband connectivity, government interventions that are part of Canada's national ICT adoption strategy should be well targeted, proportionate to their objectives, effective in relation to cost, and technologically and competitively neutral.

This chapter recommends how Canada should proceed to develop and implement a national ICT adoption strategy based on these principles. It is organized in three sections.

The first section examines the contribution of ICTs to Canada's productivity performance and long-term economic growth. It reviews the evidence that ICT investment fosters productivity growth throughout the economy. It documents recent Canadian ICT investment trends. It examines how the complementary investments that businesses make in ICT adoption through training and process innovation contribute to productivity at the level of individual firms.

The Panel believes the linkages it found between investment in ICT adoption and productivity growth are significant in light of the global economic challenges facing our country. Canada's overall productivity growth has fallen off significantly since 2000, and the Canada–U.S. productivity gap is widening. If these trends continue, Canada risks being squeezed into an increasingly uncomfortable economic niche between a large, highly productive U.S. economy and a number of large, emerging, low-cost economies.

To improve the productivity and competitiveness of our economy, the Panel believes Canada needs a national strategy to facilitate and promote the "smart adoption" of ICTs. By this, the Panel means that Canada's national strategy should focus on improving business productivity by encouraging complementary investments in ICTs, process improvements, technology applications and skills development. The Panel believes similar kinds of investments should be made by governments to improve the efficiency and quality of public services. In addition, policies must be put in place to ensure that electronic networks are secure, and that the rights of citizens and consumers are protected so they are able to experience confidence and trust in the online environment when using ICTs.

In the second section of the chapter, the Panel sets out the key ICT adoption issues facing Canada that were identified in submissions to the Panel, at the Whitehorse and Gatineau policy forums, in consultations with stakeholders and through its own research. On this basis, the Panel recommends that Canada's national ICT adoption policy should have the following six objectives:

- strengthening ICT adoption by Canadian businesses, particularly small and medium-sized enterprises (SMEs)
- strengthening the links between ICT sector research and development (R&D) and smart ICT adoption
- enhancing ICT adoption by governments
- promoting development of ICT adoption skills on a coordinated national basis
- improving security, trust and consumer confidence in the online environment
- achieving ubiquitous access to broadband networks and services.

Developing and implementing a strategy to achieve these objectives is a complex challenge. It requires the active engagement of the federal government, provinces and territories, the private sector, teachers and researchers, consumer representatives and community-based organizations. To mobilize these different stakeholders in a coordinated national effort, the Panel believes leadership must come from the highest level of the federal government. The Panel notes that many other countries have already adopted similar strategies.

To provide the necessary leadership, the Panel calls on the Prime Minister to mandate the Minister of Industry to:

- lead the development of a national ICT adoption strategy
- establish a high-level, independent National ICT Advisory Council with membership broadly representative of Canadian society and drawn from all regions of the country
- establish a National ICT Adoption Centre to support the work of the Advisory Council and the development of the national ICT adoption strategy.

The third section of the chapter proposes an ICT policy agenda for Canada. On the basis of its consultations and research, the Panel identifies a number of measures that could help achieve the first five objectives of the national ICT adoption strategy. These measures include an ICT adoption tax credit, a better coordinated and refocused approach to federal government ICT R&D activities, federal government leadership in the adoption of IPv6 (Internet Protocol version 6 — see later discussion), a nationally coordinated approach to ICT adoption skills development, and initiatives to increase security and consumer trust in the online environment.

The Panel recommends that the federal government should immediately proceed to establish an ICT adoption tax credit. It believes the other measures it proposes should be given further study by the National ICT Adoption Centre. Following review by the National ICT Advisory Council, detailed proposals should be submitted to the Minister of Industry with recommendations for appropriate action.

Measures to achieve the sixth objective of the national ICT adoption strategy — ubiquitous access to broadband networks and services — are discussed in Chapter 8, Connectivity: Completing the Job.

## Investment, Productivity and ICTs

### Productivity Trends in Canada

It is well established that productivity is the key driver of living standards, as measured by income per capita.[2] But the contribution of productivity goes well beyond increased output and incomes.

Productivity is as important for determining the economic and social well-being of Canadians as it is for determining the income of Canadians. Productivity gains can be used for more than just increases in private consumption. For example, they can be taken in the form of shorter working time, thereby providing opportunities for greater leisure. They can be used to enhance government services and programs (e.g. better health care and education systems and a more generous social safety net) that contribute to well-being by enhancing economic security and creating a more equitable society.

**Canada's productivity growth has fallen off since 2000.**

Canada's aggregate productivity growth has been weak in recent years. In 2003 and 2004, growth in output per hour in the business sector was essentially zero (Figure 7-1).

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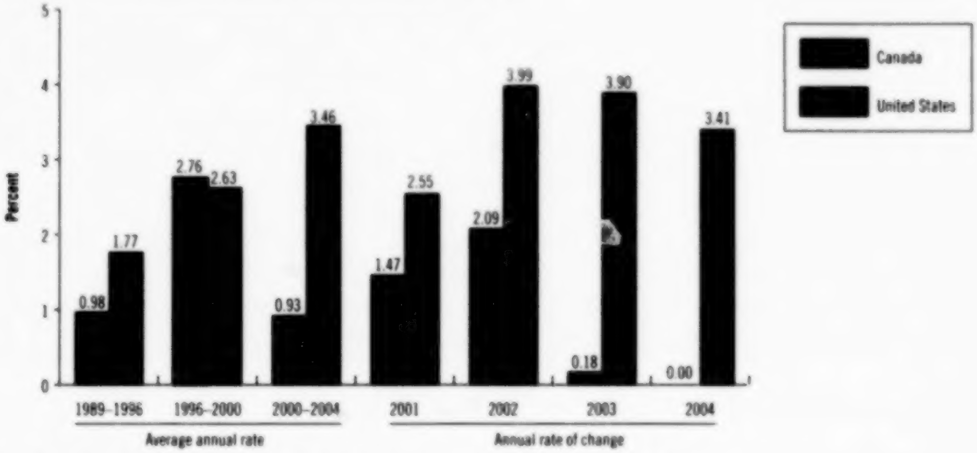
[2] Department of Finance Canada, *A Plan for Growth and Prosperity* (Ottawa: Finance Canada, November 2005), p. 24.

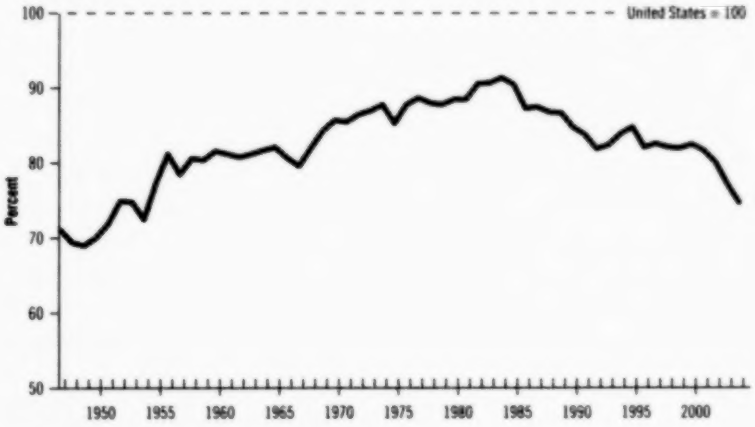
**Figure 7-1. Comparison of Business Sector Growth in Output per Hour, Canada and the United States, 1989–1996 to 2004** (%)



Source: Statistics Canada (CANSIM Series V31185380); and U.S. Bureau of Labor Statistics (Series PRS84006093), February 16, 2006.

Since 2000, business sector growth in output per hour has increased at an average annual rate of 0.9 percent per year, down from 2.8 percent in the 1996–2000 period. In contrast, in the U.S., our major trading partner, labour productivity growth has been a very robust 3.5 percent per year since 2000. This much faster U.S. growth has led to a significant increase in the Canada–U.S. business sector labour productivity gap, from 18 points in 2000 to 25 points in 2004 (Figure 7-2).

**Figure 7-2. Business Sector Output per Hour in Canada as a Share of the U.S. Level, 1947–2004** (%)



Source: Centre for the Study of Living Standards, *Aggregate Income and Productivity Database: Canada vs. United States*, Table 7a and Chart 3a. Available online at: **http://www.csls.ca/data/ipt1.asp**

Canada's productivity performance has also been poor from a long-run, international perspective. Canada ranked 17th out of 30 member countries of the Organisation for Economic Co-operation and Development (OECD) in terms of total economy labour productivity levels in 2004, down from third in 1950 and fifth in 1973.[3] The deterioration in Canada's productivity ranking over the 1973–2004 period reflected weak labour productivity growth in Canada relative to other countries. Since 1973, growth in output per hour in Canada has averaged 1.5 percent per year, the fourth lowest in the OECD.

There are many factors shaping Canada's recent productivity performance.[4] One important factor is ICT investment, whose growth rate expressed in constant dollars fell from 23.1 percent annually in the 1995–2000 period to 4.8 percent annually in the 2000–2004 period. In 2004, software was by far the largest ICT investment component, accounting for 47.8 percent of current dollar business sector ICT investment. Computers accounted for a 28.4-percent share, and communications equipment accounted for a 23.7-percent share.

### The Productivity–ICT Relationship

Economists now generally agree that ICT investment fosters productivity growth. In the 1980s and first half of the 1990s, there was scepticism about the impact of ICTs on productivity. This situation was called the "productivity paradox," named after the U.S. economist Robert Solow, who once quipped that we see computers everywhere except in the productivity statistics. But by the second half of the 1990s, the paradox was resolved, at least in the eyes of economists, as productivity growth in both Canada and the U.S. picked up and was seen to be driven by ICT investment.

The relationship between Canada's ICT investment and productivity can be analysed at three levels: at the total economy level, at the industry or sector level and at the level of the individual firm. There is evidence at all three levels that ICT investment increases productivity, and it is most conclusive at the firm level.[5]

The OECD reports that the contribution of ICT capital to total economy productivity growth in Canada over the 1995–2003 period was 0.6 percentage points (one-third of productivity growth), up from 0.4 points in the 1990–1995 period.[6] Canada ranked seventh out of 19 OECD countries in the magnitude of this contribution. Australia was first at 0.9 points, followed by the U.S. at 0.8 points. At the industry level, a positive relationship has been found in Canada between the rate of growth of software investment and labour productivity growth. Industries such as information and cultural services that exhibit high rates of software investment growth also exhibit high productivity growth (Figure 7-3).

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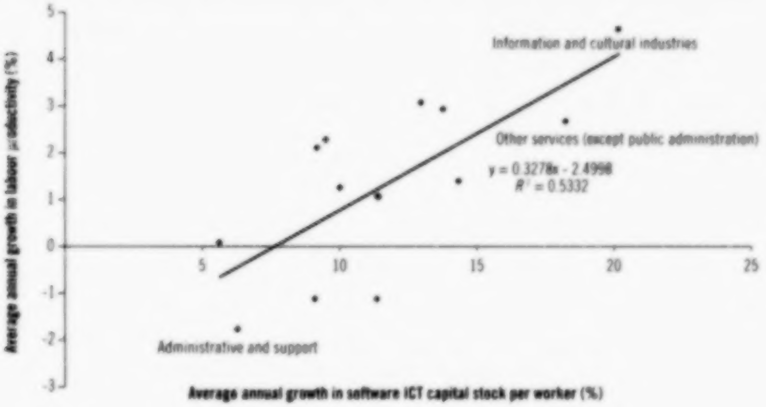
[3] Organisation for Economic Co-operation and Development, *Compendium of Productivity Indicators* (Paris: OECD, 2005).

[4] See Someshwar Rao, Andrew Sharpe and Jeremy Smith, "An analysis of the labour productivity growth slowdown in Canada since 2000," *International Productivity Monitor* 10 (Ottawa: Centre for the Study of Living Standards, Spring 2005) for a discussion of the reasons for the post-2000 productivity slowdown.

[5] Centre for the Study of Living Standards, "The Relationship between ICT Investment and Productivity in the Canadian Economy: A Review of the Evidence," report prepared for the Telecommunications Policy Review Panel, August 2005, forthcoming as a Centre for the Study of Living Standards Research Report, April 2006.

[6] OECD, *Compendium of Productivity Indicators*.

**Figure 7-3. Relationship between Growth in Software ICT Capital Stock per Worker and Growth in Labour Productivity, Selected Industries, Canada, 1987–2004**



Source: Centre for the Study of Living Standards, "The Relationship between ICT Investment and Productivity in the Canadian Economy: A Review of the Evidence," report prepared for the Telecommunications Policy Review Panel, August 2005, forthcoming as a Centre for the Study of Living Standards Research Report, April 2006.

### ICT investments at the level of individual firms enhance productivity . . .

At the firm level, a number of rigorous studies have found strong evidence that network communications technology in particular has an effect on labour productivity. The strongest firm-level evidence of a link between ICT and productivity has been provided in a study using new plant-level data that found that computer network and computer inputs, even when they are separately incorporated, have a positive and significant relationship with U.S. firm-level labour productivity.[7]

Another study estimated the relationship between relative labour productivity growth and ICT use at the firm level in the Canadian manufacturing sector over the 1988–1997 period.[8] The results show that ICT use is positively related to relative labour productivity and that there appear to be almost no productivity gains from adopting a single technology, either hardware or software. The crucial explanatory variable is the use of network communications technology, which causes a positive impact of ICT use on relative labour productivity.

### . . . along with complementary organizational changes.

Micro-level studies have also found evidence that investing in ICTs does not necessarily lead to cost reductions and higher productivity if it is not associated with organizational changes. For example, since ICTs are much more flexible than earlier technologies, they allow workers to modify their work practice, but the best practices that make the optimal use of the new capital are not always obvious.

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[7] B. K. Atrostic and S. Nguyen, "Computer investment, computer networks and productivity," Discussion Paper CES 05-01, U.S. Census Bureau, Center for Economic Studies, 2005.

[8] John Baldwin and David Sabourin, "Impact of the adoption of advanced information and communication technologies on firm performance in the Canadian manufacturing sector," Research Paper Series 11F0019MIE, No. 174 (Ottawa: Statistics Canada, Analytical Studies Branch, 2001), p. 34.

Effective ICT investment often requires firms to spend additional resources in training their workforces and testing new ways of organizing production. These costs constitute investments in complementary intangible assets that add to the total stock of capital, even though they are included in current business expenses (and hence not in investment) in official statistics. One study reports that the ratio of intangible assets to ICT assets could reach 10 to 1, suggesting that complementary investments in organizational assets are considerable.[9] Additional support for the importance of complementary investments in leveraging ICT investment comes from a recent Finance Canada study that found ICT training is strongly related to the successful implementation of ICT.[10]

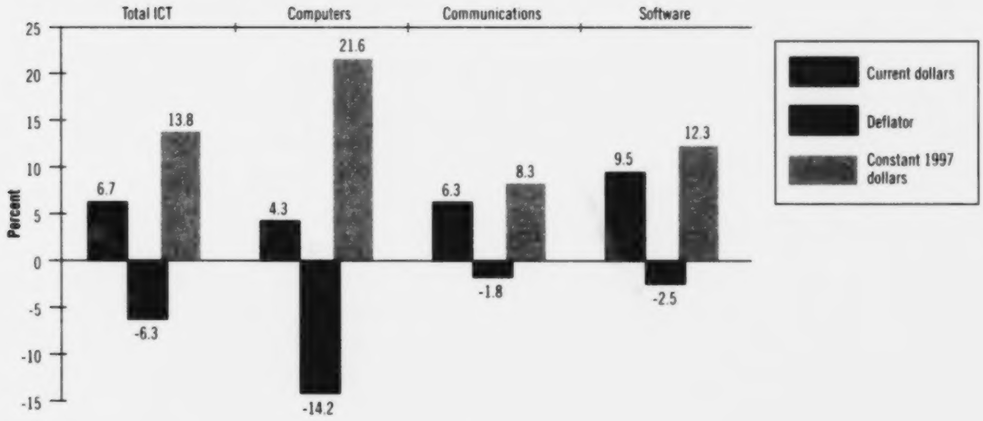
Trends in labour productivity are dependent on many variables other than ICT capital intensity, such as the economic cycle, R&D intensity, profitability and input prices. Moreover, the beneficial effects of growth in ICT capital intensity are likely to be felt with a lag. Nevertheless, there is consensus among economists that ICT, if properly implemented, is productivity enhancing.

## ICT Investment Trends in Canada

### Canadian ICT investment exhibits growth.

Real business sector ICT investment (measured in inflation-adjusted or constant dollars) grew at a 13.8-percent average annual rate between 1987 and 2004 (Figure 7-4). These figures reflect falling ICT prices because of large quality improvements in ICT products. The overall deflator for business sector ICT investment fell at a 6.3-percent average annual rate from 1987 to 2004. Current-dollar ICT investment increases were 6.7 percent per year.

**Figure 7-4. Average Annual Rate of Change in Business Sector ICT Investment, Selected Components, Canada, 1987–2004** (%)



Source: Centre for the Study of Living Standards, based on data from Statistics Canada, February 2006.

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[9] Erik Brynjolfsson and Hitt Lorin, "Beyond computation: information technology, organizational transformation and business performance," *Journal of Economic Perspectives* 14 (no. 4, 2000), pp. 23–48.

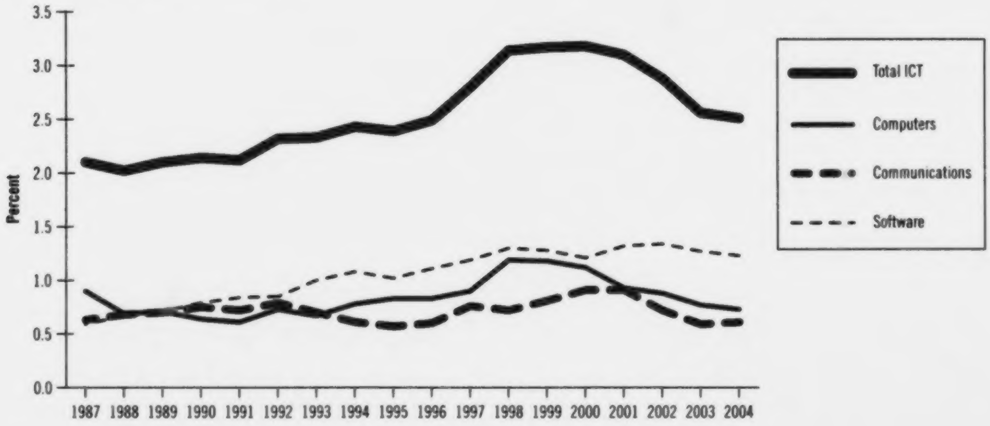
[10] Julie Turcotte and Lori Whewell Rennison, "The link between technology use, human capital, productivity and wages: Firm-level evidence," *International Productivity Monitor*, no. 9 (Fall 2004), pp. 25–36. Available online at: **http://www.csls.ca/ipm/9/turcotte_rennison-e.pdf**

In constant-dollar terms, computer investment experienced by far the most rapid rate of increases, rising by 21.6 percent per year. But in current-dollar terms, software experienced the largest increase at 9.5 percent. The difference between constant-dollar and current-dollar trends is explained by the much larger fall in computer prices relative to software prices at 14.2 percent per year versus 2.5 percent per year, respectively.

**Growth in Canadian ICT investment is largely accounted for by ICT software investment.**

There has been an upward trend in the share of ICT investment in business sector gross domestic product (GDP) from 2.1 percent in 1987 to 2.5 percent in 2004 (Figure 7-5). The share was more than 3 percent from 1998 to 2002. All the increase can be explained by software, which increased from 0.6 percent of GDP in 1987 to 1.3 percent in 2004. The share of computers actually fell from 0.9 percent to 0.7 percent, while that of communications was stable.

**Figure 7-5. Business Sector ICT Investment as a Share of Business Sector Gross Domestic Product, Current Dollars, 1987–2004** (%)



Source: Centre for the Study of Living Standards, based on data from Statistics Canada.

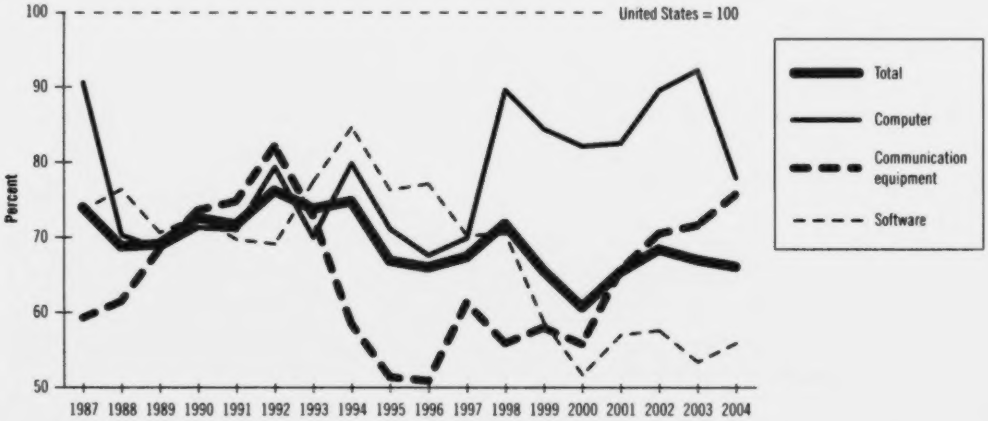
Note: The three components may not sum exactly to total because of the unavailability of data on the health care and social assistance industry used to compute business sector figures for computers, communications equipment and software.

## ICT Investment Trends in International Perspective

### Canadian ICT investment as a share of GDP is 66 percent of that in the U.S.

In 2004, the ratio of ICT investment to GDP for Canada's business sector was only 66 percent of that of the U.S. business sector (Figure 7-6). This was down from 75 percent in 1987. Canada's shortfall relative to the U.S. in total machinery and equipment investment as a share of GDP is largely accounted for by the ICT investment shortfall.

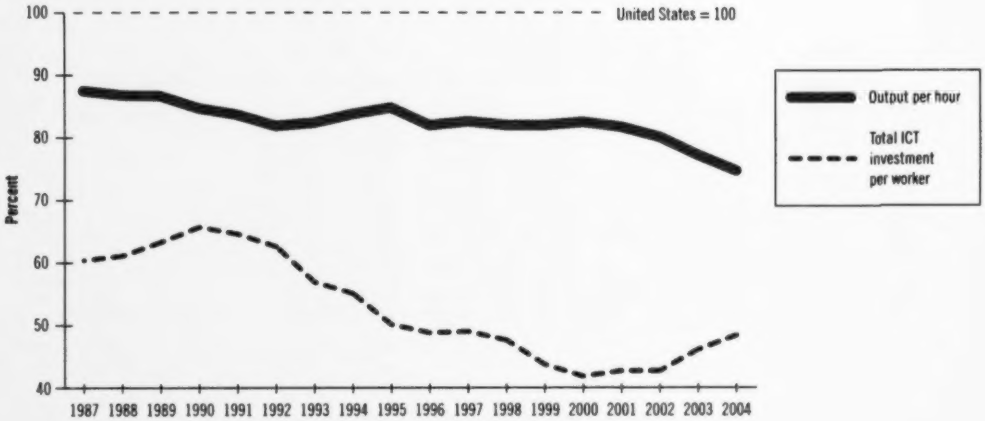
**Figure 7-6. ICT Investment as a Share of GDP in the Canadian Business Sector Relative to the Levels in the U.S. Business Sector, Selected Components, 1987–2004** (%)



Source: Centre for the Study of Living Standards, based on Statistics Canada and U.S. Bureau of Economic Analysis data, February 2006.

Canada's ICT investment performance relative to that in the U.S. is even weaker when measured on a per-worker basis rather than as a share of GDP. In 2004, business sector ICT investment per worker in Canada was only 48 percent of that of the U.S. Moreover, this proportion has been on a strong downward trend from 60 percent of the U.S. level in 1987, a trend that corresponds with the decline in our relative productivity performance (Figure 7-7).

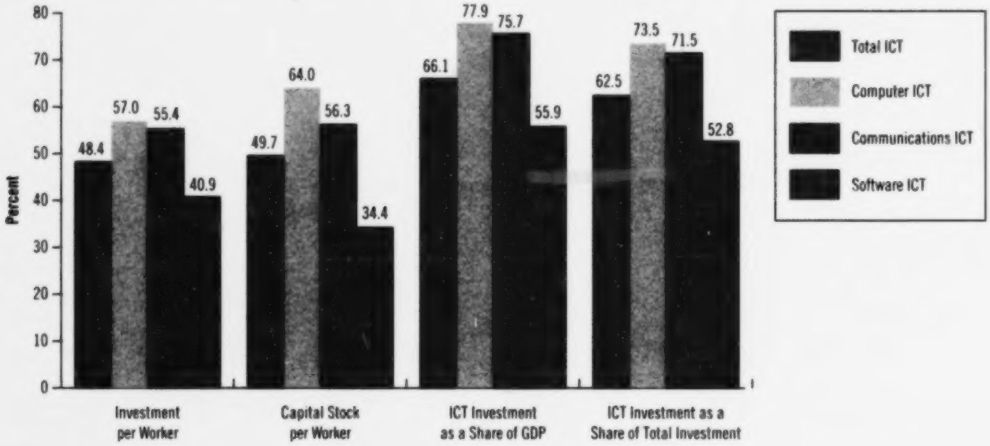
**Figure 7-7. Output (GDP) per Hour Worked and Total ICT Investment per Worker in the Canadian Business Sector Relative to Levels in the U.S. Business Sector, as Measured in Current U.S. Dollars, 1987–2004** (%)



Source: Centre for the Study of Living Standards, based on data from Statistics Canada, U.S. Department of Labor, Bureau of Labor Statistics, and U.S. Department of Commerce, Bureau of Economic Analysis, February 2006.

The shortfall in ICT investment in Canada relative to that in the U.S. is found in all three ICT components. In 2004, computer ICT investment as a share of business sector GDP in Canada was 78 percent of its U.S. counterpart, followed by 76 percent for communications and 56 percent for software (Figure 7-8).

**Figure 7-8. Canadian Business Sector ICT Investment Relative to Levels in the U.S. Business Sector, Various Measures and Components, 2004** (%)

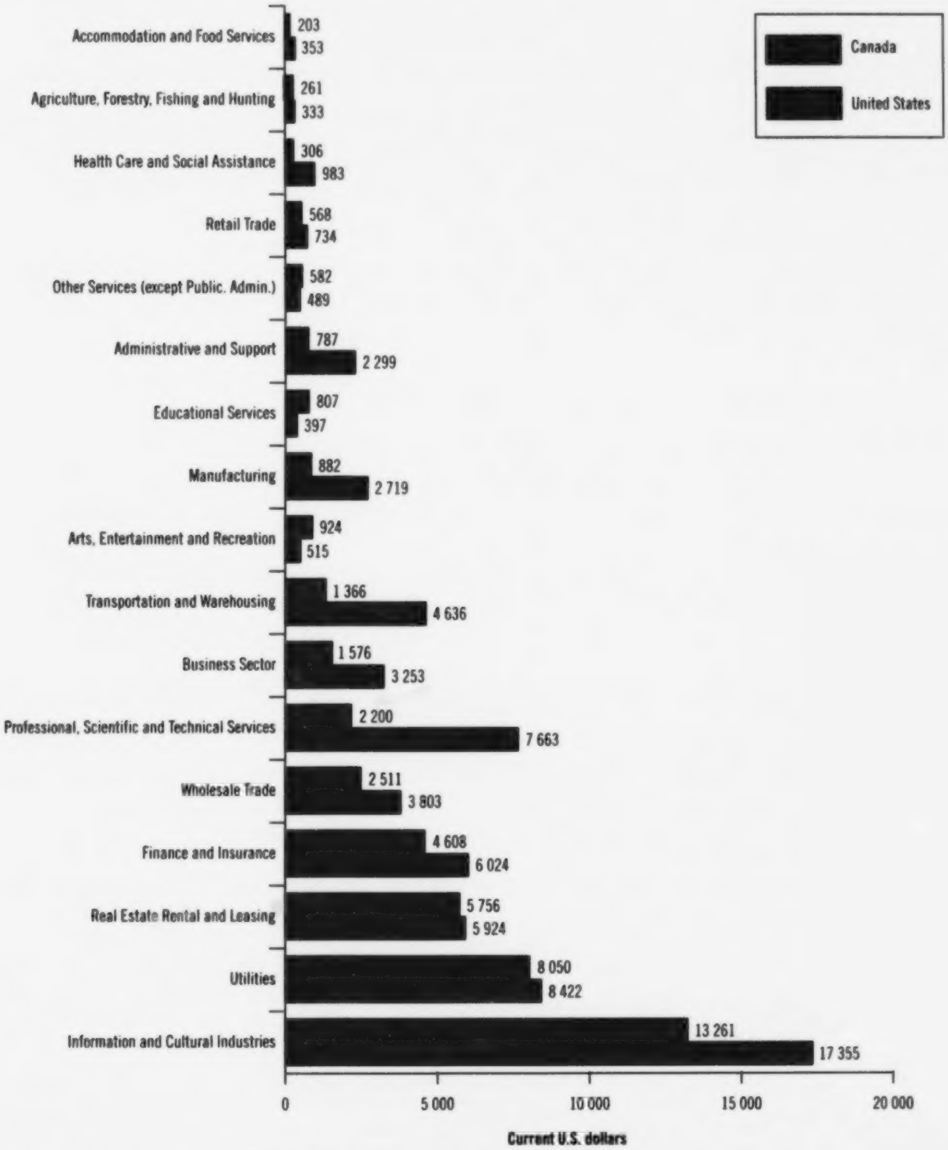


Source: Centre for the Study of Living Standards, based on data from Statistics Canada, U.S. Department of Labor, Bureau of Labor Statistics, and U.S. Department of Commerce, Bureau of Economic Analysis, February 2006.

### U.S. ICT investment per worker is greater than Canada's in 13 of 16 industries.

ICT investment per worker varies greatly by industry (Figure 7-9), ranging in 2004 in Canada from a high of US$13 261 in information and cultural industries to a low of US$203 in accommodation and food services. Following the overall trend, U.S. ICT investment per worker exceeds that in Canada in 13 of 16 industries. The exceptions are arts, entertainment and recreation, educational services, and other services.

**Figure 7-9. ICT Investment per Worker, Selected Industries, Canada and the United States, 2004** (current U.S. dollars)



Source: Centre for the Study of Living Standards, based on data from Statistics Canada, U.S. Department of Labor, Bureau of Labor Statistics, and U.S. Department of Commerce, Bureau of Economic Analysis, February 2006.

One recent study presented to the Panel found that lower ICT capital stock intensity in Canada explains 56 percent of the Canada–U.S. labour productivity gap in 2003.[11] This finding is important, as it serves as one indicator of the magnitude of the ICT investment challenge for Canada.

### Canada's ICT investment performance internationally is average.

Canada's ICT investment performance is average by international standards. In terms of its share of ICT investment in non-residential fixed capital formation, Canada ranked eighth (a 20.3-percent share) out of 19 OECD countries in 2001. The U.S. ranked first with a 32.1-percent share.

In 2001, Canada also ranked eighth among OECD countries in terms of share of ICT investment in GDP (2.46 percent). The U.S. ranked first at 3.76 percent. For ICT investment per worker, Canada ranked ninth at $1133, or 42 percent of the U.S. level of $2724.

### Why is Canadian ICT investment lagging relative to that in the U.S.?

Although Canada invests as high a percentage of its GDP as the United States, ICT investment accounts for a lower share of total investment in Canada than in the United States. A 2005 study has identified three key factors that contribute to the Canada–U.S. gap in ICT investment as a share of total investment[12]:

- Canada's lower employment shares in the high ICT intensity information and cultural industries and finance and insurance
- Canada's greater proportion of jobs in small enterprises that invest less per worker
- Canada's 20-percent-lower labour compensation, resulting in less substitution of ICT capital for labour and therefore less ICT investment.

## Conclusions

On the basis of the research reported above and drawing on the many submissions made on the subject of ICT investment and ICT adoption, the Panel concludes that:

- Canada's overall productivity growth has fallen off significantly since 2000, and the Canada–U.S. productivity gap is widening.

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[11] Mel Fuss and Leonard Waverman, "Canada's productivity dilemma: The role of computers and telecom," Appendix E-1 to Bell Canada's Submission to the Telecommunications Policy Review Panel, Ottawa, August 2005. Fuss and Waverman break down the 56-percent contribution for 2003 into 12 percent from capital deepening and 44 percent from ICT spillovers. The spillovers are in turn disaggregated into 2 percent from telecom penetration and 42 percent from information technology (IT) penetration. The IT penetration is further disaggregated into 31 percent from personal computer (PC) penetration (computers per capita) and 11 percent from digital/PC interaction. Similar results were obtained for 2000, although the overall ICT contribution to the productivity gap that year was somewhat higher at 60 percent.

[12] Centre for the Study of Living Standards, "What explains the Canada–U.S. ICT investment gap?" Report prepared for the Information Technology Association of Canada (Ottawa: CSLS, December 2005). An abridged version of the report under the same title was published in the Fall 2005 issue of the *International Productivity Monitor*, available online at: **www.csls.ca**

- Weakness in ICT investment is an important contributing factor to Canada's weak productivity performance, in terms of both productivity levels and growth rates. Increased ICT investment therefore represents an opportunity for improved productivity performance at the economy-wide level.
- Investing in ICTs by itself is no guarantee of higher productivity. There is a substantial body of microeconomic research to suggest, at the level of individual firms, that productivity gains result when ICT investment is accompanied by complementary investments in organizational transformation, which involves many different investment areas, including business process re-engineering and employee training.

## Making Smart ICT Adoption a National Priority

### The Need for a National Strategy

The evidence presented in the previous section indicates that sustained business investment in ICTs is an important factor in productivity growth and international competitiveness. It also indicates that the "smart adoption" of ICTs through complementary investments in organizational redesign, process re-engineering and skills development makes the difference for individual firms and, through them, for the economy as a whole. Smart adoption of ICTs is important beyond the business sector. It is important for government, public sector institutions and organizations as well as civil society. It matters for the quality of life for individual Canadians and the communities in which they live.[13]

In the 1990s, Canada was a leader in developing strategies to promote network connectivity and electronic commerce. Today, Canada's leadership position is challenged. The 2004 Networked Readiness Index, produced by the World Economic Forum, ranks Canada 10th overall out of 104 countries, down from sixth in 2002 and 2003. Moreover, it ranks Canada 49th out of 104 countries in government promotion of ICTs and 42nd in making ICTs a national priority.[14]

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[13] In this same context, the Panel takes note of Canada's agreement to the final communiqué of the November 2005 World Summit on the Information Society and its unequivocal reaffirmation of support for the 2003 Geneva Declaration of Principles and Plan of Action, including:

> We reaffirm our desire and commitment to build a people-centred, inclusive and development-oriented Information Society, premised on the purposes and principles of the Charter of the United Nations, international law and multilateralism, and respecting fully and upholding the Universal Declaration of Human Rights, so that people everywhere can create, access, utilise and share information and knowledge, to achieve their full potential and to attain the internationally agreed development goals and objectives, including the Millennium Development Goals.

Second Phase of the WSIS, Tunis, Tunisia, November 16–18, 2005, Tunis Commitment WSIS-05/TUNIS/DOC/7. Available online at: **http://www.itu.int/wsis/docs2/tunis/off/7.html**

[14] World Economic Forum, *Global Information Technology Report 2004–2005*. Available online at: **http://www.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme%5CGlobal+Information+Technology+Report**

### What Other Countries Are Doing

Canada's major international competitors recognize the importance of advanced networks and ICT applications. In many cases, they have already established high-level national strategies and launched initiatives aimed at making their countries world leaders in ICT adoption. Selected examples of these national strategies follow.

#### The European Union

On June 1, 2005, the European Commission adopted the initiative *i2010: European Information Society 2010*. Its objective is to ensure that Europe's citizens, businesses and governments make the best use of ICTs to improve industrial competitiveness, support growth and the creation of jobs and to help address key societal challenges.

#### Ireland

Ireland's *New Connections: A Strategy to Realize the Potential of the Information Society* was launched in 2002 by the Prime Minister of Ireland. Its objective is to create a public policy environment that supports the development of an "information society" within Ireland; that is, a society that makes extensive use of ICTs. To implement the strategy, a new Cabinet-level position of Minister for the Information Society was created, and a new Cabinet Committee on the Information Society was established. It is chaired by the Prime Minister.

#### The United Kingdom

In March 2005, the U.K. Prime Minister endorsed a new *U.K. Digital Strategy*. The objective of the strategy is to make the U.K. a world leader in digital excellence and the first nation to close the digital divide. This was followed in November 2005 by a strategy for using ICTs to transform public services, for example, by delivering public sector services through mobile technology and digital TV.

#### Japan

In 2001, the Japanese government created an "IT Strategic Headquarters" with the mandate to promote policy measures for establishing an advanced IT network society in Japan. The Prime Minister of Japan heads this body and most senior Japanese government ministers are members. The IT Strategic Headquarters also includes representatives from the private sector and academia. Its most recent initiative is the 2004 "U-Japan strategy," which aims at boosting Japan's economy and society by fully integrating ubiquitous ICTs.

### Australia

In July 2004, the government of Australia released a "Strategic Framework on Opportunities and Challenges for the Information Age." This strategy is intended to provide policy leadership and national direction in addressing the ICT challenges facing Australia. The strategy is guided by the Online and Communications Council, a ministerial forum that includes representatives of Australia's commonwealth, state and territorial governments. The council is chaired by the Australian Minister for Communications, Information Technology and the Arts. Its objective is to promote national ICT policy consistency through consultation and coordination.

### South Korea

During 2004, the South Korean government launched "IT839," a national strategy to promote strong collaboration among information technology services, infrastructure and manufacturing. IT839 aims to provide eight new services (including terrestrial digital TV and Internet telephony), build three kinds of infrastructure (including IPv6) and foster nine new driving forces of growth (including next-generation mobile communications, home network services, and digital content for culture, education and health), as well as channel efforts into attaining a per capita GDP of US$20 000. South Korea's Informatization Promotion Committee (IPC), chaired by the Prime Minister, evaluates progress on the implementation of the master plan and recommends changes as required.

### India

In 2004, India's Minister of Communications and Information Technology set out a national ICT agenda that includes bringing "cyber connectivity" to every citizen, ensuring migration to IPv6 in India by 2006, providing seamless communications connectivity to rural areas, promoting value-added services and micro enterprises at the village level, extending quality health care services to remote areas through telemedicine, and using ICTs to improve literacy through distance education.

### The United States

As long ago as 1988, the U.S. Congress established the Technology Administration in the Department of Commerce, recognizing that technology and industrial innovation are central to the economic, environmental and social well-being of citizens of the United States. The mission of the Technology Administration is to maximize technology's contribution to economic growth, high-wage job creation and the social well-being of the United States. In 2001, the U.S. President issued an Executive Order on Critical Infrastructure Protection in the Information Age and established a National Infrastructure Advisory Council to provide advice on the security of information systems for critical infrastructure supporting other sectors of the economy, such as banking and finance, transportation, energy, manufacturing and emergency government services.

## Key Issues

These examples from other countries reinforce a message the Panel received in a number of submissions and throughout its consultation process: a comprehensive national ICT adoption strategy is needed if Canada is to remain a global leader in the development and use of advanced networks and ICT applications. The Panel believes Canada should focus its strategy on using ICTs to help achieve the overall goals of telecommunications policy.

**Recommendation 7-1**

**Under the leadership of the Prime Minister, the federal government should develop a national ICT adoption strategy focused on using ICTs to increase the productivity of the Canadian economy, the social well-being of Canadians and the inclusiveness of Canadian society.**

On the basis of submissions received during its consultation process and its own research, the Panel identified six key objectives that must be attained to achieve the overall goals of the national ICT adoption strategy:

- strengthening ICT adoption by Canadian businesses, particularly SMEs
- strengthening the links between ICT sector R&D and smart ICT adoption
- enhancing ICT adoption by governments
- promoting development of ICT adoption skills on a coordinated national basis
- improving security, trust and consumer confidence in the online environment
- achieving ubiquitous access to broadband networks and services.

The first five of these challenges are described in the sections that follow. In its terms of reference, the Panel was specifically asked to provide recommendations on how to achieve ubiquitous broadband access. This topic is the subject of Chapter 8, Connectivity: Completing the Job.

### Strengthening ICT Adoption by Canadian Businesses

As shown in Table 7-1, many Canadian businesses, both large and small, have already adopted one or more of the most basic ICTs, including personal computers, email and the Internet.

Table 7-1. ICT Use among Businesses, Selected Technologies, 2000–2004 (% of all firms)

| Technology | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|
| Personal computer | 81.4 | 83.9 | 85.5 | 87.4 | 88.6 |
| Email access | 60.4 | 66.0 | 71.2 | 73.8 | 76.6 |
| Internet access | 63.4 | 70.8 | 75.7 | 78.2 | 81.6 |
| Own website | 25.7 | 28.6 | 31.5 | 34.0 | 36.8 |
| Sell goods or services online | 6.4 | 6.7 | 7.5 | 7.1 | 7.4 |
| Purchase goods or services online | 18.2 | 22.4 | 31.7 | 37.2 | 42.5 |
| Value of sales over the Internet ($ millions) | 7 246 | 10 389 | 13 339 | 18 598 | 26 438 |

Source: Statistics Canada, *Innovation Analysis Bulletin 7*, no. 3 (October 2005) Catalogue no. 88-003-XIE, p. 19.

However, Canadian SMEs[15] have lower adoption rates relative to large firms according to such indicators of basic ICT use as having a website or selling or purchasing online.[16] Table 7-2 shows the use of basic ICTs by firm size for 2001–2003. Overall, large firms have universally embraced these technologies, while a significant proportion of small firms have not done so.

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[15] According to Industry Canada's *Key Small Business Statistics* (Ottawa: Industry Canada, July 2005), which is available online at: **http://strategis.ic.gc.ca/epic/internet/insbrp-rppe.nsf/en/rd01224e.html**.

The size of a business can be defined in many ways, by the value of its annual sales or shipments, for example, or by its annual gross or net revenue, the size of its assets or the number of its employees. Many institutions define small businesses according to their own needs: the Canadian Bankers' Association classifies a company as "small" if it qualifies for a loan authorization of less than $250 000, while the Export Development Corporation defines small or "emerging" exporters as firms with export sales under $1 million. Industry Canada has often used a definition based on the number of employees: goods-producing firms are considered "small" if they have fewer than 100 employees, while for service producing firms the cut-off point is seen as 50 employees. Above that size, and up to 499 employees, a firm is considered medium-sized. The smallest of small businesses are called micro-enterprises, most often defined as having fewer than five employees. The term SME (for small and medium-sized enterprise) is used to refer to all businesses with fewer than 500 employees, while firms with 500 or more employees are classified as "large" businesses.

[16] The Panel recognizes that having a website is merely an indicator of ICT adoption, and is not always the best or necessary ICT adoption practice for all businesses. Moreover, as recently pointed out by Statistics Canada, many people may think of selling or purchasing online only in relation to retail sales to consumers. The current reality is quite different. In 2004, total online sales (retail and business-to-business) were estimated at $26.5 billion. Sales from business to business represented 75 percent of this total, or about $19.8 billion. Online wholesale trade has the highest value of online sales of any industrial sector, representing an estimated 23 percent of total online sales. See Mark Uhrbach "How business-to-business sales dominate e-commerce," Analytical Paper, Statistics Canada Catalogue no. 11-621-MIE2005033, November 2005.

Table 7-2 ICT Use among Businesses, by Firm Size, Selected Technologies, 2001-2003 of all firms

| Technology and Firm Size | 2001 | 2002 | 2003 |
|---|---|---|---|
| **Internet access** | | | |
| Small | 68 | 73 | 76 |
| Medium | 91 | 92 | 94 |
| Large | 94 | 99 | 97 |
| All firms | 71 | 76 | 78 |
| **Own website** | | | |
| Small | 24 | 27 | 29 |
| Medium | 57 | 62 | 66 |
| Large | 74 | 77 | 77 |
| All firms | 29 | 32 | 34 |
| **Sell goods or services online** | | | |
| Small | 6 | 7 | 6 |
| Medium | 12 | 13 | 14 |
| Large | 15 | 16 | 16 |
| All firms | 7 | 8 | 7 |
| **Purchase goods or services online** | | | |
| Small | 20 | 29 | 35 |
| Medium | 30 | 47 | 50 |
| Large | 52 | 57 | 61 |
| All firms | 22 | 32 | 37 |

[a] Statistics Canada defines small firms as having fewer than 20 employees, medium-sized firms as having between 20 and 99 employees, and large firms as having more than 100 employees for all industries except manufacturing. The upper limit for the medium-sized category in the manufacturing industry is 499 employees, while firms with 500 employees or more are defined as large.

Source: Statistics Canada, Survey of Electronic Commerce and Technology (SECT), 2004. Available online at: http://e-com.ic.gc.ca/epic/internet/inecic-ceac.nsf/en/gv00152e.html

The Canadian e-Business Initiative (CeBI)[17] — established in 2002 as a private sector-led partnership to further Canada's e-business success — has also documented that Canadian SMEs are lagging in the adoption of the advanced ICTs that are part of smart adoption. Its September 2004 *Fast Forward Report* stated[18]:

> While small businesses lead in customer-focused applications, they are reticent about adopting many of the more advanced e-business solutions. Although these solutions, such as e-procurement, supply chain management and human resources management, offer substantial potential for cost savings and profit enhancement, the majority of small firms do not utilize them.

The availability of advanced ICTs constitutes an opportunity for all Canadian business, both large and small. The complementary investments required for the effective adoption of ICTs, including adapting business concepts, value chains, organizations, supplier and customer relations, and employee training programs, constitute the challenge.

Surveys of Canadian industry undertaken by Statistics Canada, the CeBI, and other national and international research organizations reveal many impediments to ICT adoption by Canadian businesses. The direct acquisition cost of ICTs is nearly always at or near the top of the list of impediments cited by firms for the adoption of ICTs. However, many other impediments, in many respects, are more difficult to address. These are generally related to firm structure, operations, internal management capacity, the availability of people with the right skills, and access to critical information and knowledge for integrated technical and strategic decision making. Many of these impediments can be expected to fall more heavily on SMEs than on larger firms.

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[17] The Canadian e-Business Initiative (CeBI) was launched in September 2002 as a private sector-led partnership that aimed to further Canada's e-business success by focusing on productivity, leadership and innovation.

[18] CeBI, *Fast Forward 5.0: Making Connectivity Work for Canada* (Ottawa: Canadian e-Business Initiative, September 2004), p. 25.

**Examples of Impediments to ICT Adoption by Canadian SMEs Identified through the Canadian e-Business Initiative**

- SMEs have widely adopted stand-alone solutions (such as websites and email) that are relatively easy to implement, but have been slower to adopt integrated solutions (Internet business solutions or IBS) that are more difficult to implement.
- The cost savings from IBS are not uniformly realized by SMEs across all size and industry segments and many SMEs do not understand the business case for IBS adoption. SMEs do not have a clear strategy for implementing IBS. Planning is non-existent or *ad hoc*.
- Canadian SMEs are not fully integrated in supply chains of customers and suppliers. Participants in these supply chains are developing common standards for exchanging information and creating inter-organizational "virtual" processes for managing business operations.
- Smaller SMEs (fewer than 100 employees) lag larger SMEs (between 100 and 500 employees) across a number of dimensions, including adoption rates, internal capabilities and cost reduction benefits. Smaller SMEs appear to be the hardest to convince of the benefits of IBS adoption.
- Widespread availability of Internet business solutions specifically designed for the SME market is lacking.

Source: CeBI, *Net Impact Study Canada: Strategies for Increasing SME Engagement in the e-Economy* (2004). Available online at: **http://www.cebi.ca/Public/Team1/Docs/net_impact_english.pdf**

In Canada, a widely cited study analyses the results of a Statistics Canada survey of impediments to "advanced technology" adoption among Canadian manufacturers. Many of these advanced technologies either directly embody ICTs or are dependent upon them. As reported in Table 7-3, Canadian manufacturing businesses ranked "institution-related" factors (including R&D tax credits and capital cost allowance provisions) lower than such other categories of impediments as cost, labour and organization-related factors.[19]

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[19] John Baldwin and Zhengxi Lin, *Impediments to Advanced Technology Adoption for Canadian Manufacturers*, Working Paper No. 173, Statistics Canada Catalogue no. 11F0019MPE, August 2001, p. 1.

Table 7-3. Impediments to Advanced Technology Use Cited by Canadian Manufacturing Establishments (% of all firms)

| **Impediment** | **(%)** |
|---|---|
| **Cost-related** | **68.5** |
| Capital | 47.0 |
| Equipment | 53.0 |
| Software development | 17.5 |
| Maintenance | 12.4 |
| Technology acquisition | 27.9 |
| **Institution-related** | **16.4** |
| R&D investment tax credit | 7.7 |
| Capital cost allowance | 8.4 |
| Regulations and standards | 9.9 |
| **Labour-related** | **28.8** |
| Skill shortage | 20.2 |
| Training difficulty | 16.8 |
| Labour contract | 5.8 |
| **Organization-related** | **20.9** |
| Difficulty in introducing change | 13.0 |
| Management attitude | 7.9 |
| Worker resistance | 9.0 |
| **Information-related** | **16.0** |
| Lack of information | 10.4 |
| Lack of service | 7.7 |
| Lack of support from vendors | 8.6 |

Source: John Baldwin and Zhengxi Lin, *Impediments to Advanced Technology Adoption for Canadian Manufacturers*, Working Paper No. 173, Statistics Canada Catalogue no. 11F0019MPE, August 2001, p. 1. The Baldwin–Lin analysis is based on Statistics Canada's 1993 Survey of Innovation and Advanced Technology. The general picture they draw, and the findings reported in Table 2, are largely consistent with other more recent, although less detailed and comprehensive, surveys of impediments to Canadian business technology adoption.

The Panel believes overcoming these impediments and strengthening ICT adoption by Canadian businesses — particularly by the SMEs that provide a significant proportion of Canadian jobs — should be a fundamental objective of Canada's national ICT adoption strategy. It will not be possible to achieve the other goals of the strategy without the economic benefits that flow from smart ICT adoption, in terms of increased productivity, improved competitiveness, enhanced opportunities for product and service innovation throughout the economy, and new job opportunities.

### Strengthening ICT R&D

The Panel believes, without a strong national ICT R&D base, Canada will lack the people, ideas, and knowledge networks to effectively shape and implement ICT adoption strategies throughout the Canadian economy. The Panel also believes, in the absence of a strong Canadian ICT R&D effort, Canada may find it increasingly difficult to position itself at the high-value-added, knowledge-intensive end of global and regional supply chains.

> "Capabilities maintained and fostered in Canada are available to supply technological and management expertise to the ecosystem of emerging ICT companies and to governments and companies in the broader private sector that are looking to benefit from the application of ICT to their own operations. Furthermore, the quality of teaching and mentoring available in Canada is enhanced, as are opportunities for cooperation among industry, government and universities."
>
> — Submission to the Telecommunications Policy Review Panel from the Information Technology Association of Canada.

As Table 7-4 shows, R&D spending by the ICT goods-and-services-producing sector accounts for an estimated 38 percent of total business R&D spending (current and capital) in 2004. The entire ICT-producing sector accounts for almost 41 percent of all full-time equivalent R&D personnel across all Canadian industries. Within the ICT-producing sector, the Canadian communications equipment manufacturing industry is the largest R&D-spending industry. It also represents 12.1 percent of total manufacturing and service industry R&D spending in Canada.

**Table 7-4 Research and Development Expenditures and Personnel in ICT, 2001–2005[a]**

| | 2001 | 2002 | 2003[p] | 2004[p] | 2005[i] |
|---|---|---|---|---|---|
| **ICT Industries** | millions of dollars | | | | |
| **Total R&D expenditures** | **6 688** | **5 390** | **5 181** | **5 146** | **5 249** |
| Current | 5 940 | 4 972 | 4 837 | 4 831 | 4 911 |
| Capital | 748 | 418 | 343 | 315 | 338 |
| | full-time equivalents | | | | |
| **Total R&D personnel** | **51 525** | **48 005** | **47 560** | – | – |
| Professionals | 38 676 | 35 113 | 33 783 | – | – |
| Technicians | 10 149 | 9 441 | 9 293 | – | – |
| Other | 2 700 | 3 451 | 4 484 | – | – |
| **Non-ICT Industries** | millions of dollars | | | | |
| **Total R&D expenditures** | **7 632** | **7 976** | **8 210** | **8 484** | **8 599** |
| Current | 6 880 | 7 285 | 7 594 | 7 813 | 7 967 |
| Capital | 753 | 692 | 616 | 671 | 632 |
| | full-time equivalents | | | | |
| **Total R&D personnel** | **64 113** | **65 403** | **68 733** | – | – |
| Professionals | 34 833 | 35 576 | 37 013 | – | – |
| Technicians | 19 471 | 20 185 | 21 934 | – | – |
| Other | 9 809 | 9 642 | 9 786 | – | – |

[a] For the purposes of this table, Statistics Canada identifies the ICT sector as comprised of a subset of the North American Industry Classification System (NAICS) codes from various industries. According to Statistics Canada, the table presents the ICT sector industries in comparison with the non-ICT sector industry. This comparison indicates that the decline in R&D spending in 2002 was contained within the ICT group, whereas non-ICT industries show constant growth in all five years. The same can be said for R&D personnel: where ICT industries saw a decline of 7.7 percent, non-ICT industries increased their R&D personnel by 7.2 percent. ICT-based industries are found in a variety of industry groups, including manufacturing (NAICS 3333, 33411, 33421, 33422, 33431, 33441, 33451 and 33592), wholesale trade (NAICS 4173 and 41791), information and cultural industries (NAICS 5112, 517 to 518), real estate and rental leasing (NAICS 53242), professional, scientific and technical services (NAICS 5415) and other services (NAICS 8112). For a complete description of the NAICS, refer to Industry Canada, Canadian Industry Statistics, available online at: **http://lcv.ic.gc.ca/sc_ecnmy/sio/homepage.html**

[p] Preliminary estimates.

[i] Intentions for 2005 expressed during 2004.

Source: Statistics Canada, *Science Statistics*, Catalogue 88-001-XIE, June 30, 2005. Available online at: **http://www.statcan.ca/english/freepub/88-001-XIE/88-001-XIE2004010.pdf**

Increasing ICT sector R&D is important in itself, but even more so to the extent that it is linked to improving ICT adoption performance across the Canadian economy. However, there is little empirical evidence to date on the nature and extent of the linkages between ICT sector R&D in Canada and improved economic performance across all sectors of the economy.

To successfully frame and implement a national ICT adoption strategy, the Panel believes it is vital to understand the relationship between ICT R&D, on the one hand, and smart adoption of ICTs throughout Canada's economy and society, on the other. Without this understanding, it will be difficult for the federal government to provide more effective support to smart ICT adoption in the private and public sectors through better management and coordination of its R&D institutions and programs.

The Panel believes strengthening the links between ICT R&D and smart adoption of ICTs in the private and public sectors should be a second objective of Canada's national ICT adoption strategy.

### Promoting ICT Adoption by Governments

In seeking to use ICTs to improve the quality of the services they provide to Canadian citizens and to enhance their efficiency, governments face challenges similar to those faced by businesses seeking to use ICTs to improve their productivity and competitiveness. To be smart adopters of ICTs, government departments and agencies also need to re-engineer processes, transform organizational structures and develop the skills of their employees. In addition, they face unique challenges in becoming smart ICT adopters arising from the legal and financial frameworks within which they operate, which are very different from those governing private businesses.

There are many international benchmarking studies of e-government performance across national jurisdictions. In general, Canada ranks well within the top 10 countries in all these benchmarking studies. For example, a commonly cited international benchmarking study of e-government is conducted annually by the private sector consulting firm Accenture. Its April 2005 annual benchmarking study ranked Canada number one of 22 countries for the fifth year in a row.[20] Even those studies that find some erosion in Canadian e-government performance over recent years are highly complementary of the progress being made.[21]

The Panel believes Canada's currently high international e-government ranking cannot be taken for granted, given the pace of social, economic and technological change as well as the rising expectations of Canadians for more responsive and more productive government.

In December 2003, the federal government received the final report of the Government On-Line Advisory Panel, *Connecting with Canadians: Pursuing Service Transformation*.[22] The GOL Advisory Panel was composed of representatives from across the public and private sectors and included representatives from civil society organizations and academic institutions. In its report, the GOL Advisory Panel provided the government with many specific recommendations on how to transform its services to improve the efficiency of its operations and provide higher-quality services to Canadian citizens and businesses. It also warned[23]:

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[20] Accenture, *Leadership in Customer Service: New Expectations, New Experiences*, The Government Executive Series, 2005. Available online at: **http://www.accenture.com/xdoc/ca/locations/canada/insights/studies/leadership_cust.pdf**

[21] United Nations, *UN Global E-Government Readiness Report: Towards Access for Opportunity*, UNPAN/2004/11 (New York: UN Department of Economic and Social Affairs, 2004), p. 28.

[22] Government On-Line Advisory Panel, *Connecting with Canadians: Pursuing Service Transformation*, Final Report to the President of the Treasury Board of Canada (Ottawa: December 2003). Available online at: **http://www.gol-ged.gc.ca/pnl-grp/reports/final/final00_e.asp**

> If the federal government does not transform its services, they will deteriorate in the face of rising demands resulting from demographic, economic and social trends. As services deteriorate, government will lose its relevance to Canadians.

Many submissions to this Panel were largely in agreement with the analysis contained in the GOL Advisory Panel report. The submissions were almost unanimous in the view that all governments in Canada have much to gain by way of their more effective adoption and deployment of ICTs for the delivery of public services, including in the areas of health, education and emergency preparedness.[24]

The Panel believes enhancing smart ICT adoption by Canada's different levels of government should be a third objective of the national ICT adoption strategy.

### ICT Adoption Skills

A variety of skills are needed for smart adoption of ICTs. Some of these are technical, for example, the skills needed to design and develop ICT networks and applications. Others are managerial, for example, the skills needed to redesign business processes, supply chains and organizational structures, as well as the skills needed to manage people, financial and material resources, and relations with clients and customers in ICT-infused environments. Still others are the skills that employees, students, consumers, citizens and end-users increasingly need to interact using ICTs with organizations, communities of interest and each other.

Development of the various kinds of skills that Canadians need to be smart adopters of ICTs is a complex process involving different levels of government, primary, secondary and post-secondary educational institutions, public and private sector organizations, communities and voluntary organizations as well as families and individuals.

The Panel believes promoting the development of ICT adoption skills should be a fourth objective of Canada's national ICT adoption strategy. Coordinating a national effort will be a challenge. However, without a sound, coordinated approach to developing the skills needed for smart ICT adoption, the overall national strategy will not succeed.

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[23] *Ibid.*

[24] Canadian federal and provincial governments are investing significant resources in ICT adoption in each of these areas, including e-health. On September 11, 2000, in support of a First Ministers' agreement, the Canadian federal government announced that it would "invest $500 million immediately in an independent corporation mandated to accelerate the development and adoption of modern systems of information technology, such as electronic patient records, so as to provide better health care." As a result, the $500-million federal investment was granted in March 2001 to Canada Health Infoway Inc., a not-for-profit organization established earlier that year. Infoway's initial priority was to foster and accelerate the development and implementation of effective, interoperable Electronic Health solutions. On February 18, 2003, in support of the 2003 First Ministers' Accord on Health Care Renewal, the 2003 budget announced the provision of an "additional $600 million to Canada Health Infoway to accelerate the development of Electronic Health Records, common information technology standards across the country, and the further development of telehealth applications, which are critical to care in rural and remote areas. An additional $100 million was granted to Infoway in March 2004 to support the development of a pan-Canadian health surveillance system." For more information, see online at: **http://www.hc-sc.gc.ca/hcs-sss/ehealth-esante/index_e.html**

### Improving Security, Confidence and Trust in the Online Environment

There are an increasing number of risks and vulnerabilities associated with ICT adoption. These risks include threats to the privacy of personal information, threats to the safety, reliability and security of networks, cybercrime and illegal content.

In relation to privacy concerns, the Privacy Commissioner of Canada described the challenge, in her annual report to Parliament tabled in November 2005, in the following terms[25]:

> We are entering a world where computing power will be present in the most ordinary day-to-day devices. If we are not careful, that power will be used to gather or broadcast personal information in ways that greatly diminish our privacy, not to mention our autonomy and human dignity. As transmitting devices are built into roadsides, licence plates, currency and books, we are hard-pressed to keep up with the potential privacy invasions and abuses.

Strengthening the Internet as a medium for electronic commerce requires countering spam (unsolicited email), spyware, phishing (electronic fraud and identify theft) and other harmful practices that were documented in the May 2005 report of the federal government's Task Force on Spam. The task force pointed out that these activities are a direct threat to the viability of the Internet as an effective means of communication and are therefore a threat to increasing economic prosperity, more efficient public services and the emergence of an e-economy that includes all Canadians.[26]

#### The Need for a Comprehensive Strategy to Fight Threats to the Internet

"The third major lesson the Task Force [on Spam] has learned is that the fight against spam is only part of a much larger battle now beginning against emerging and potentially much more serious threats to the Internet as a platform for communications and commerce."

— *Stopping Spam: Creating a Stronger, Safer Internet*, Report of the Task Force on Spam (Ottawa: May 2005).

The Panel noted that the federal government has taken a number of steps to build trust, confidence and security in electronic marketplaces and in the use of electronic communications in cooperation with other levels of government, the private sector and consumer groups. Major domestic initiatives have included:

- the *Personal Information Protection and Electronic Documents Act* (PIPEDA), which came into full effect on January 1, 2004

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[25] Office of the Privacy Commissioner of Canada, Annual Report to Parliament 2004 Report on the *Personal Information Protection and Electronic Documents Act*. October 2005. Available online at: **http://www.privcom.gc.ca/information/ar/200405/2004_pipeda_e.asp#top**

[26] Industry Canada, *Stopping Spam: Creating a Stronger, Safer Internet*, Report of the Task Force on Spam (Ottawa: Industry Canada, May 2005). Available online at: **http://e-com.ic.gc.ca/epic/internet/inecic-ceac.nsf/vwapj/stopping_spam_May2005.pdf/$file/stopping_spam_May2005.pdf**

- the Code of Practice for Consumer Protection in Electronic Commerce, which was endorsed by federal, provincial and territorial ministers responsible for consumer affairs on January 16, 2004
- the Principles for Electronic Authentication, which Industry Canada announced in May 2004
- the national security policy, "Securing an Open Society," announced by the federal government in May 2004, which included a commitment to strengthening Canada's capacity to predict and prevent cyber-attacks.[27]

In addition to the domestic concerns addressed by these initiatives, the Panel noted that international cooperation is essential to ensure the creation of a global culture of trust and security. A number of examples of such cooperation were brought to the Panel's attention. For example, the OECD has developed guidelines for Online Privacy and Consumer Protection in the Context of Electronic Commerce. In addition, Canada, the U.S. and Mexico agreed to a Framework of Common Principles for Electronic Commerce under the March 2005 Security and Prosperity Partnership of North America.

Trust, confidence and security are necessary ingredients for well-functioning marketplaces online, just as they are in the physical world. The Panel believes creating an environment in which these conditions can flourish should be a fifth objective of Canada's national ICT adoption strategy.

## The Need for Leadership

Developing a national ICT adoption strategy to meet these challenges will require strong leadership from the federal government. To successfully promote smart ICT adoption among Canadian businesses, communities and citizens, the federal government will need to secure the active engagement of different departments and agencies of the federal, provincial and territorial governments, the private sector, researchers and teachers, consumer representatives, and community-based organizations.

### A Lead ICT Minister

The example of other countries suggests that national ICT adoption strategies are likely to be most successful when they are initiated at the highest levels of government and are supported at equivalent levels throughout society.

To provide the leadership that is necessary to promote effective national engagement, the Panel recommends that the Prime Minister should mandate the Minister of Industry with lead responsibility for developing and implementing a national ICT adoption strategy. This responsibility should be carried out in consultation and coordination with other ministers of the federal government, with provincial, territorial and municipal governments, and with high-level representatives of stakeholder groups.

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[27] Canada, Privy Council Office, *Securing an Open Society: Canada's National Security Policy* (Ottawa: PCO, April 2004), p. 26. Available online at: **http://www.pco-bcp.gc.ca/docs/Publications/NatSecurnat/natsecurnat_e.pdf**

**Recommendation 7-2**

**The Prime Minister should mandate the Minister of Industry to develop and implement a national ICT adoption strategy in collaboration with key federal, provincial, territorial and municipal government colleagues as well as high-level representatives from the private, public and not-for-profit sectors, with the following objectives:**

**(a) strengthening ICT adoption by Canadian businesses, particularly small and medium-sized enterprises,**

**(b) strengthening the links between ICT sector research and development and ICT adoption,**

**(c) enhancing ICT adoption by governments,**

**(d) promoting development of ICT adoption skills on a coordinated national basis,**

**(e) improving security, confidence and trust in the online environment, and**

**(f) achieving ubiquitous access to broadband networks and services.**

### A National ICT Adoption Centre

In leading the development and implementation of a national ICT adoption strategy, the Minister of Industry will require support in the ongoing processes of issue identification, policy research and analysis, consultation, coordination, implementation and evaluation that are necessary for the success of any national strategy involving multiple stakeholders. The Panel therefore concludes that the Prime Minister should mandate the Minister of Industry to establish a National ICT Adoption Centre within Industry Canada.

**Recommendation 7-3**

**The Prime Minister should mandate the Minister of Industry to establish a National ICT Adoption Centre within Industry Canada to**

**(a) benchmark Canada's performance in the adoption and effective use of ICTs,**

**(b) conduct policy research and analysis on issues related to ICT adoption in the private and public sectors, in order to inform discussions and support new initiatives related to ICT adoption,**

**(c) coordinate policies, programs and other measures aimed at promoting the smart adoption of ICTs within the federal government with the provinces to avoid overlap and duplication of effort,**

**(d) be a lead advocate for the effective use of ICTs, particularly among small and medium-sized enterprises, and**

**(e) manage the deployment of the U-CAN program (see Recommendation 8-4).**

### A National ICT Advisory Council

In the past decade, the federal government has made effective use of *ad hoc* advisory bodies composed of high-level representatives of governments, the private sector and other stakeholders to assist in the development and implementation of ICT policies and strategies on specific issues. This practice began in the 1990s with the Information Highway Advisory Council. More recently, it has been continued through the work of bodies such as the National Broadband Task Force, the Government On-Line Advisory Panel and the Task Force on Spam.

In 1996, the federal government also established an Advisory Council on Science and Technology to provide ongoing advice to the Prime Minister on the status and way forward for science, technology and innovation in Canada. In the course of its work, the Advisory Council on Science and Technology has addressed a number of the issues dealt with in this report, such as the relationship between innovation, technology and productivity as well as the adoption of advanced technologies and business practices.

After considering which of these models is best suited to supporting the development and implementation of a national ICT adoption strategy of the kind it is recommending, the Panel believes the most effective way for the Minister of Industry to obtain independent advice and secure the active engagement of stakeholders would be to establish and personally chair a high-level National ICT Advisory Council composed of leaders from the private, public and not-for-profit sectors.

Unlike previous ICT advisory bodies, which had specific missions and limited durations, the Panel believes the National ICT Advisory Council should be modeled on the Advisory Council on Science and Technology. It should be given the mandate to provide ongoing advice on a broad range of issues related to smart ICT adoption in Canada's economy and society, subject to periodic reviews of its effectiveness.

The council should be an independent source of advice and expertise to the Minister and should report annually on the implementation of the strategy. The members of the council should champion the development of the national ICT adoption strategy collectively and within their respective organizations.

**Recommendation 7-4**

**The Minister of Industry should establish a high-level National ICT Advisory Council comprised of select federal, provincial and territorial ministers as well as leaders from the private sector, universities, research institutions, consumer groups and communities to provide ongoing advice on the development and implementation of the national ICT adoption strategy.**

## Components of a National ICT Strategy

In line with the general principles underlying its recommendations on telecommunications regulation in Chapters 2 to 6, on connectivity in Chapter 8, and on institutional reform in Chapter 9, the Panel believes the objectives of the national ICT adoption strategy should be achieved as much as possible through market forces. However, the Panel also believes government intervention is justified when economic or social objectives are unlikely to be achieved by market forces alone. Such intervention should be well targeted, proportionate to its purposes, effective in relation to cost, and technologically and competitively neutral.

Through its consultations and research, the Panel identified a number of areas where government action is required to help achieve the objectives of the national ICT adoption strategy. The Panel believes the general goal of such action should be to create an environment in which smart ICT adoption can flourish, either by removing impediments to smart ICT adoption in the private sector, or by promoting smart ICT adoption in the public sector. On the one hand, initiatives to encourage ICT adoption by Canadian businesses, strengthen computer security, and promote consumer trust and confidence in the online environment are examples of actions the Panel believes the federal government should take to remove impediments to ICT adoption and strengthen market forces. On the other hand, initiatives to enhance smart ICT adoption in government departments and agencies, focus federal government ICT R&D on adoption, and promote development of ICT adoption skills through education and training are examples of actions the Panel believes the federal government should take within its own area of responsibility and in cooperation with the provinces and territories.

In this section, the Panel proposes measures it believes the federal government should consider taking to help achieve the objectives of the national ICT adoption strategy. These proposals are based on advice the Panel received through consultations and its own research and analysis. With the exception of the ICT adoption tax credit proposed in the following subsection, the Panel did not have the time required to study these measures in the depth necessary to make recommendations, as has been done in other chapters of the report. However, the Panel believes these proposals should be given further study by the National ICT Adoption Centre. Following review by the National ICT Advisory Council, the centre should submit detailed proposals to the Minister of Industry with recommendations for appropriate action.

### Measures to Strengthen ICT Adoption by Canadian Businesses

In light of the strong relationship it found between ICT adoption and increased productivity and in view of the current impediments to smart ICT adoption that were identified in submissions to the Panel and through its own research, the Panel believes the federal government should consider taking the following steps to encourage the smart adoption of ICTs by Canadian businesses.

### An ICT Adoption Tax Credit

Canadian SMEs make a large contribution to the Canadian economy as measured by GDP, employment and exports[28]:

- The OECD has estimated that 43 percent of Canadian private sector GDP can be attributed to SMEs (here SMEs are defined as businesses with fewer than 500 employees).
- SMEs employ close to 6.7 million, or 65 percent, of all employees in the private sector. Fewer than 3000 businesses (0.3 percent of all employer businesses) have more than 500 employees.
- The proportion of small businesses that export is lower than the proportion of small businesses in the overall economy. Only 1.4 percent of small businesses export, while 27.0 percent of medium-sized and 37.7 percent of large businesses participate in exporting.

To continue making a substantial contribution to Canada's prosperity in a globally competitive economic environment, the Panel believes SMEs must overcome the impediments to ICT adoption that are identified in the preceding section of this chapter. In line with its general principles regarding the role of government when economic or social objectives are unlikely to be achieved by market forces alone, the Panel has come to the conclusion that well-targeted tax measures could incent SMEs to become smart adopters of ICTs.

The Panel notes that a number of arguments have been advanced in support of an adoption tax incentive for ICT investment and necessary complementary investments in training and business processing re-engineering. These include:

- externalities associated with ICT investment
- the fixed cost of innovation
- the higher marginal effective tax rate for ICT assets compared with non-ICT assets
- the identification of lagging ICT investment as a key contributor to the Canada–U.S. labour productivity gap.

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[28] The indicators of the contribution of small and medium-sized businesses to the Canadian economy are those reported in Industry Canada's report "Key Small Business Statistics July 2005," available online at: **http://strategis.ic.gc.ca/epic/internet/insbrp-rppe.nsf/en/rd00760e.html**. With respect to the contribution of SMEs to employment creation, the report states:

> Over the years, the relative contribution in terms of size varied greatly. During the period under review, each of the business size categories played the leading role at different times in net job creation in Canada. For six years, in 1996 and 1997 and from 2000 to 2003, small businesses made the greatest contribution to net job creation. On the other hand, at the beginning of this period, in 1994 and 1995, medium-sized businesses created the most jobs, and in 1998, 1999 and 2004, large businesses played the leading job creation role. Because both small and medium-sized businesses simultaneously shed jobs while large businesses created a large number of jobs, 2004 was an atypical year. The jobs created were concentrated in retail trade; administrative, waste management and remediation services; and accommodation and food services. A significant limitation of these data is that they are for a period when the economy was generally expanding, with only a mild downturn in 1995–96. In a more severe downturn or a recession, the percentage contributions to job creation (or loss) by smaller businesses may be quite different.

A network effect is a type of externality whereby the value of a good or service depends on the number of persons already owning that good or using that service. For example, as more and more persons are connected to the Internet, the value of the Internet to society increases as it becomes a more effective communications tool. There may still be undeveloped network effects in Canada related to ICTs. Since the societal benefits of these network externalities may exceed the private benefits, fiscal incentives for ICT investment could be justified as a way to ensure that the level of ICT investment is sufficient for network effects to be fully exploited.

If the price of ICT investment goods is greater than their marginal cost, firms may underinvest in them. A recent survey of the literature on investment concluded that because of the need to cover the fixed costs of innovating, the price of machinery and equipment, which included ICT assets, is indeed higher than the marginal cost, resulting in underinvestment in competitive markets.[29] Because innovative firms charge a price higher than the marginal cost for investment goods, the rates of innovating and diffusion may be low relative to a social optimum. Public policy measures that favour ICT adoption may thus be justified from the perspective of economic theory.

A high tax rate on ICT assets will discourage investment. The marginal effective tax rate (METR) on ICT assets in Canada in 2005 was 46.7 percent, well above the rate for machinery and equipment excluding ICTs, which was 32.0 percent.[30] This higher rate largely reflected the short-lived nature of ICT assets, as firms in a number of provinces (Ontario, British Columbia, Manitoba, Saskatchewan and Prince Edward Island) pay provincial sales tax each time an asset is purchased. Fiscal incentives that level the playing field between different asset types by reducing the METR on ICT assets would result in a more efficient allocation of resources and foster productivity growth.

It is widely recognized that the level of aggregate labour productivity in Canada is significantly below that in the United States. A recent study[31] estimates that the lower ICT capital stock in Canada accounted for 56 percent of the Canada–U.S. labour productivity gap in 2003, with lower spillovers from information technology penetration the most important component. This evidence suggests that, to reduce the Canada–U.S. labour productivity gap, Canada may need to increase the degree of information technology penetration to U.S. levels. Fiscal incentives on ICT investment could play an important role in this regard.

The Panel believes the important role played by SMEs in the Canadian economy, the magnitude of the ICT adoption challenge they face, the positive externalities associated with ICT network effects, and the need to level the playing field between ICT investments and investments in other types of assets justify the use of tax incentives to encourage SMEs to acquire advanced ICTs and make the complementary investments necessary for their effective adoption.

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[29] Aled ab Iorwerth, "Machines and the Economics of Growth," Finance Canada Working Paper 2005-05, March 2005.

[30] Estimates prepared by Finance Canada.

[31] Fuss and Waverman, "Canada's productivity dilemma."

The Panel notes that tax credits are widely used fiscal measures whose effectiveness is well recognized.[32] The federal government currently has a tax credit for R&D and for investment in Atlantic Canada. Manitoba and Saskatchewan have introduced tax credits to offset the provincial sales tax on machinery and equipment.

The Panel also believes the federal government should continue to ensure that Canada's taxation regime is internationally competitive. In this regard, it notes that ICT tax credits already exist in other countries, such as Japan, South Korea and Spain, as well as in a number of U.S. states, including California, North Carolina, Maine and New York.

There are a number of possible tax measures that could be introduced to incent investment in and effective use of ICTs by SMEs. The Panel considered a number of possible tax measures and concluded that an ICT adoption tax credit would be the most appropriate measure. The main reason for this choice is that, unlike the capital cost allowance, tax credits can be applied on an incremental basis; that is, to additional ICT investment beyond a baseline. This means that the tax incentive affects investment behaviour at the margin, and therefore does not needlessly subsidize ICT investment that would take place in its absence.

The Panel believes an ICT adoption tax credit should apply to both software and complementary expenditures related to effective ICT use, such as training and business process re-engineering, as well as to hardware. Since both these former types of expenditures are usually expensed, they are not affected by capital cost allowances. For this reason, a tax credit approach was chosen over an accelerated CCA approach.

**Recommendation 7-5**

**The federal government should introduce an ICT adoption tax credit targeted at small and medium-sized enterprises and having the following features:**

**(a) it should apply to investments in ICT assets and to complementary expenses related to ICT adoption,**

**(b) it should define ICT assets broadly as including computers, communications equipment, software and computerized manufacturing equipment,**

**(c) complementary expenditures related to the effective adoption of ICTs such as costs related to ICT training, organization change and process re-engineering necessary for ICT adoption should be eligible for the tax credit,**

**(d) in order to increase its effectiveness and reduce the associated tax expenditures, the ICT adoption tax credit should apply only to incremental ICT adoption costs, and**

**(e) the credit should be fully refundable when no tax is payable.**

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[32] Jacek Warda, "Incentives for ICT Adoption: Canada and Major Competitors," Study prepared for the Information Technologies Association of Canada, July 2005.

### Other Measures to Help Improve ICT Adoption by SMEs

Because many of the organizational impediments to ICT adoption by SMEs are within their control, the Panel believes it is largely the job of the private sector to remove these impediments. At the same time, the Panel believes government can potentially play a critical enabling role through targeted programming for SMEs in such areas as helping connect SMEs with firms and experts that can facilitate ICT adoption, helping develop mechanisms for dissemination of ICT adoption best practices, and helping measure, benchmark and report on national ICT adoption progress by SMEs.

If an ICT adoption tax credit is developed, helping connect SMEs with intermediary firms and experts in ICT adoption could help SMEs capture the full benefits of that measure.[33]

Governments can act to help overcome barriers to ICT adoption arising from weaknesses in both information generation and diffusion within commercial markets. Measures to address the inadequacies of the information that firms use in their ICT investment decisions would be consistent with the widely accepted role of government in addressing information failures. In fact, many foreign governments have initiated programs pertaining to the acquisition and dissemination of information in a variety of ICT adoption areas. To take one among many examples, the Netherlands plan, *Competing with ICT Competencies Action Plan*, sets out an extensive ICT information dissemination program for SMEs, summarized in Table 7-5.

Table 7-5. Netherlands' Government Action Line for Raising ICT Awareness among Small and Medium-sized Enterprises, 2004–2007

| **Objective** | **Target** |
|---|---|
| Targeting the leading SMEs: | |
| 60 seminars reach: | 2500 companies |
| 80 workshops reach: | 1280 companies |
| 400 individual consultations reach: | 400 companies |
| Targeting the SMEs that follow technology: | |
| 24 seminars reach: | 480 companies |
| 70 workshops reach: | 700 companies |
| 200 individual consultations reach: | 200 companies |

Source: Kingdom of the Netherlands, Ministries of Economic Affairs and Education, Culture and Science, *Competing with ICT Competencies Action Plan: Direction and Returns in the ICT Knowledge Chain* (The Hague: May 2004), p. 21. Available online at: **http://appz.ez.nl/publicaties/pdfs/040105.pdf**

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[33] Pierre Hadaya, "Determinants of the future level of use of electronic marketplaces among Canadian firms," Proceedings of the 37th Hawaii International Conference on System Sciences, 2004. Hadaya underlined the importance of intermediary firms and experts in determining the future level of use of electronic marketplaces. Drawing on data collected from 1200 senior managers in Canadian firms, Hadaya found that intermediary firms and experts play a highly influential role in determining the future level of use of electronic marketplaces.

The Panel notes that Canadian federal government departments are already an important source of market-relevant information for SMEs, but there is no single point of focus and little coordination of effort with respect to improving the ICT adoption performance of SMEs through information dissemination. The Panel believes the National ICT Adoption Centre should develop proposals to remedy this situation.

## Measures to Strengthen ICT R&D

Given the gaps in our current understanding of the relationship between ICT R&D and ICT adoption, the Panel believes the National ICT Adoption Centre should investigate these linkages and develop proposals for strengthening them, with particular emphasis on measures to improve the focus and coordination of federal government ICT R&D activities so that they contribute more effectively to smart adoption of ICTs throughout Canada's economy and society. In developing these proposals, the Panel suggests that the centre address the following issues.

### Improving Coherence and Focus in Federal ICT R&D Programs

The Panel believes Canada should work toward greater coordination and alignment of federal government R&D programs, such as those described in the box below, as well as between government, industry and university ICT-related R&D efforts. In addition, Canada needs to greatly improve the quality and availability of data on the levels of federal government ICT R&D support for various technologies and industry sectors. Only on the basis of such data can decisions be made on what specific program, institutional or policy changes would improve the level and quality of Canadian ICT R&D.

The Panel believes the effectiveness of federal financial support for ICT sector and ICT adoption research could be improved through such actions as:

- collecting and evaluating data on federal direct and indirect financial support for R&D funding for the ICT sector, including that made through intramural research and federally funded foundations
- working with industry, educational and research institutes, along with strategic advice from the National ICT Advisory Council, to establish ICT-specific R&D benchmarks and objectives
- working with other federal government departments to align federal government financial support with identified gaps in ICT research effort and thereby help achieve the ICT R&D benchmarks and objectives.

**Federal Government Institutions Supporting ICT R&D**

The **National Research Council Canada** (NRC) is one of Canada's leading R&D organizations. It provides specific support for the Institute for Information Technology (NRC-IIT).

The **Natural Sciences and Engineering Research Council of Canada** (NSERC) supports both basic university research through grants and project research through partnerships among universities, governments and the private sector.

**Precarn Incorporated** is a national consortium of corporations, research institutes and government partners supporting and funding innovation in intelligent systems.

**CANARIE Inc.** is a not-for-profit corporation whose mission is to accelerate Canada's advanced Internet development and use by facilitating the widespread adoption of faster, more efficient networks and by enabling the next generation of advanced products, applications and services to run on them.

The **Communications Research Centre Canada** (CRC) is an agency of Industry Canada and is the government's primary laboratory for research and development (R&D) in advanced telecommunications, including satellite and terrestrial wireless communications, rural and remote broadband access and broadcast technologies.

**Canada Foundation for Innovation** (CFI) is a government corporation that funds research infrastructure to strengthen the capacity of research institutions in Canada. The CFI has established a National Platforms Fund to finance High Performance Computing Infrastructure, and through its various programs has supported research in the fields of information technology and telecommunications systems, among others.

### Smart R&D Infrastructure

The emergence of the Internet as a primary driver of social and economic change has had a fundamental impact on ICT adoption by businesses, governments, communities and citizens. As discussed in Chapter 1, telecommunications networks over the past five years have evolved from primarily providing communications services (whether fixed or mobile, voice, text or multimedia) to providing a transactional infrastructure that supports access to a range of e-commerce, entertainment and knowledge-based content and services. At the same time, the adoption of ICTs by both business and individuals has entered a new phase in which the formerly separate infrastructures of the ICT environment (distinct hardware and software installations controlled by individual organizations or households) and the network (the technological means by which common carriers link organizations and individuals) are beginning to merge.[34]

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[34] Google is an example of a web-based platform that provides applications, such as mail, calendaring and maps, that used to be desktop-based on individual PCs but are now network-based.

To provide Canadian citizens and businesses with a full range of innovative applications and services in this new, merging and emerging ICT environment, Canada's next-generation telecommunications networks must be fully interoperable. Moreover, they must support the requirements of increasingly interdependent applications and transactional processes. As businesses and other organizations are recognizing the productivity gains brought about by adopting ICTs and re-engineering their business structures, they are also recognizing a new need to coordinate their new networked information technology infrastructures and business processes across organizational boundaries.

Just as Canadian businesses will become increasingly reliant on an intelligent ICT infrastructure in order to function effectively within globally interoperable supply chains, so R&D in Canada is equally reliant on an intelligent, shared ICT infrastructure to support innovation across the full range of research domains. Commercialization of the results of research is also dependent on both researchers and businesses having access to an intelligent ICT infrastructure based on common standards and protocols that support web-based, service-oriented architectures.

In order for Canadian organizations to successfully make this transition, the Panel believes the federal government must help support and coordinate R&D efforts that will add to the development of a next-generation smart ICT infrastructure to support increasingly interdependent business processes and industry R&D.

### Measures to Enhance ICT Adoption by Government

The Panel strongly supports the overall conclusion of the final report of the Government On-Line Advisory Panel that the federal government should demonstrate leadership in using ICTs.[35]

A number of submissions to the Panel suggested that the federal government should take a leadership role in the adoption of advanced ICTs. The attention of the Panel was drawn to many different models that are used internationally to improve technology uptake through government procurement. These approaches include aggregating demand, supporting early stage prototype development and testing, creating early market demand, and strengthening and developing linkages between key institutions for deploying and diffusing advanced ICTs.

In line with its general principle of relying on market forces to the maximum extent feasible, the Panel believes the federal government should ensure that its procurement policies strengthen the competitive position of Canadian companies at home and abroad, without sheltering them from foreign competition. The Panel also believes, while government procurement may in specific cases help improve Canadian ICT adoption performance, it is not the only policy instrument and may not always be the most effective one.

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[35] Since the delivery of the GOL Advisory Panel's report, the operational management of the Government On-Line Initiative has been transferred to Public Works and Government Services Canada, while the responsibilities for the policy side of GOL remained with the Treasury Board of Canada Secretariat. According to the 2005 GOL Annual Report, this change recognized that investments in the electronic channel and online service delivery have evolved from "special project status" to normal business for the federal government.

The Panel believes the federal government should be a lead adopter of technologies that promise to bring broad economic and social benefits to Canadians, both directly by enabling the delivery of quality government services, and indirectly through widespread demonstration effects throughout the economy. One example of such a technology is Internet Protocol version 6, or IPv6.

Internet network addresses are used to help send information from one computer to another over the Internet by routing the information to its final destination. The protocol that enables the administration of these addresses is the Internet Protocol (IP). The most widely deployed version of IP is version 4 (IPv4). However, IPv4 has several limitations, which IPv6 has been designed to overcome. In addition to dramatically increasing IP address space, IPv6 provides greater flexibility and functionality, improved routing of data, enhanced mobility features, easier configuration capabilities, improved quality of service and greater security.[36]

The Panel notes that other governments are moving to adopt IPv6:

- In 2003, the U.S. Administration established the development of secure and robust Internet mechanisms as important goals because of the nation's growing dependence on cyberspace, and identified migration to IPv6 as a key contributor to the achievement of these goals. In June 2005, the U.S. Administration set June 2008 as the date by which U.S. government networks must be using IPv6.
- In 2001, the government of Japan set a national goal of realizing an Internet environment equipped with IPv6. It continues to vigorously pursue this goal and is currently engaged in model verification experiments, including verification of effectiveness of IPv6 in various application environments and reliability of the IPv4–IPv6 transition models.
- The European Union has established a task force with a mandate to initiate country/regional IPv6 task forces across Europe and to seek cooperation around the world. The EU task force and the Japanese IPv6 Promotion Council have forged an alliance to foster worldwide deployment of IPv6.[37]

The Panel believes IPv6 is an excellent example of the type of technological advancement that the federal government should take the lead in adopting.

### Measures to Promote ICT Adoption Skills

The Panel believes the Minister of Industry should seek the advice of the National ICT Advisory Council on how the federal government should facilitate and promote ICT adoption skills in the private and public sectors and throughout Canadian society on a coordinated national basis, in partnership with the provinces and other stakeholders.

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[36] U.S. Government Accountability Office, *Internet Protocol Version 6: Federal Agencies Need to Plan for Transition and Manage Security Risks*, GAO-05-845T (Washington, DC: GAO, June 29, 2005). Available online at: **http://www.gao.gov/new.items/d05845t.pdf**

[37] *Ibid.*

The following sections set out some of the issues that the Advisory Council and the Minister may wish to consider in relation to these objectives.

### ICT Adoption for Improved Community Development

Physical access to ICTs at the community level, together with improved broadband network connectivity, is a prime means for spreading the social and economic benefits of information technology. A new generation of ICT applications allows communities to adapt ICTs to their own situations, develop local content, and access and use content created by others. However, none of this will happen in the absence of e-literacy and technology skills at the community level.

The Panel believes a vibrant ICT private sector not only is important for creating opportunities throughout the economy, but also is an engine for building e-literacy and ICT technology skills at the community level. In addition, the Canadian Research Alliance for Community Innovation and Networking noted in its submission to the Panel that community networks and other community-based organizations provide both technological and social infrastructures for ICT access, adoption and use. Community networks also act as important sources of local economic development and innovation. Through training programs, for example, they help ensure that all Canadians, particularly those most at risk of being left behind, have the necessary skills to participate in the networked economy.

### ICT Adoption for Improved Delivery of Public Services

During 2002, the Commission on the Future of Health Care in Canada (the Romanow Commission) and the Final Report of the Senate Standing Committee on Social Affairs, Science and Technology (the Kirby Report) both recommended increased government spending on ICT adoption in the health sector.[38] The federal government has provided significant funding for the development of health care information systems designed to improve patient care and health care delivery in all regions of the country. In the field of education, Canada was the first country in the world to connect all of its public schools and libraries to the Internet. Online learning has also been a focus of attention for the provincial and territorial governments' Council of Ministers of Education.[39] The challenge raised in many submissions to the Panel is how Canada can improve and accelerate progress in e-learning, e-health, and other areas of broad social interest and importance.

As with business, the challenge facing the providers of health care, education and other public services is the re-engineering of existing service models in light of the possibilities that are opened up by ICTs and the Internet, and also the redesign of their delivery systems and organizational structures to fit these new service models to capture the economic and social benefits.[40]

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[38] See Commission on the Future of Health Care in Canada, *Building on Values: The Future of Health Care in Canada*, Final Report (Ottawa: November 2002). Available online at: **http://www.hc-sc.gc.ca/english/care/romanow/index1.html**. See also Canada, Senate, Standing Committee on Social Affairs, Science and Technology, *The Health of Canadians — The Federal Role*, Final Report (Ottawa: October 2002). Available online at: **http://www.parl.gc.ca/37/2/parlbus/commbus/senate/com-e/SOCI-E/rep-e/repoct02vol6-e.htm**

[39] See Council of Ministers of Education, *Communiqué*, October 6, 2005. Available online at: **http://www.cmec.ca/releases/press.en.stm?id=37**

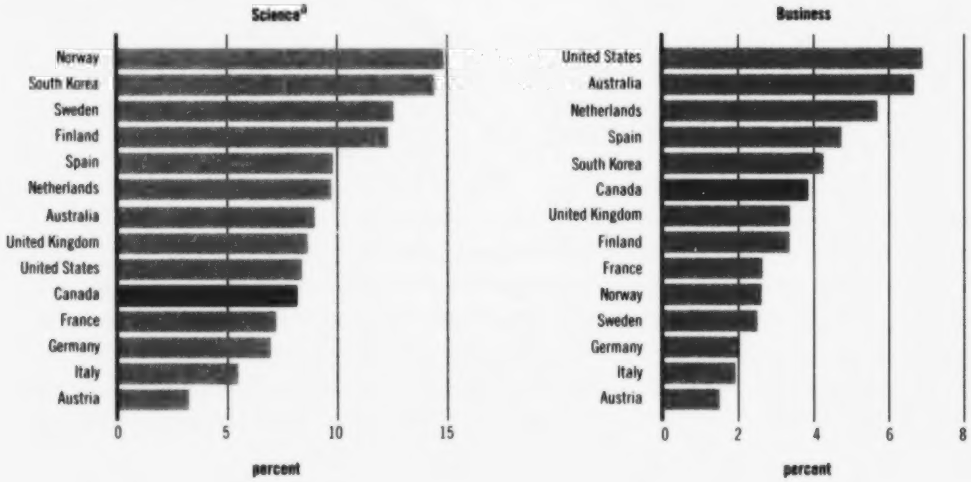
[40] "The Challenge of Change: Building the 21st Century Economy," Conference Background Paper for e-Commerce to e-Economy: Strategies for the 21st Century, September 27–28, 2004, Ottawa. Available online at: **http://www.e-economy.ca/epic/internet/inec2ee-ceace.nsf/en/home**

### E-literacy, Skills and Learning

A high-quality post-secondary education system is essential to provide the skills and abilities required in an increasingly ICT-driven marketplace. Canadians are well educated by international standards: 51 percent of Canadians aged 25–34 have some post-secondary education, the highest level in the OECD. Canada is well ahead of the U.S. with respect to college-level attainment but not as successful with respect to university attainment.

When comparing the proportion of youth with a university degree in science, Canada lags slightly behind the U.S., which ranks in the middle of OECD countries (Figure 7-10). However, when comparing the proportion of youth with a university degree in business, Canada lags far behind the U.S., which leads the OECD rankings. In addition, a number of submissions noted that there is a low and declining rate of enrolment in computer studies and engineering programs at Canadian colleges and universities (Figure 7-10).

**Figure 7-10. Percentage of 25–34-year-olds with a University Degree, Selected Countries, 2003** (%)



[a] Science includes life sciences, physical sciences, mathematics and statistics, computing, engineering, agriculture and health.

Source: Organisation for Economic Co-operation and Development, *Education at a Glance: OECD Indicators — 2004 Edition* (Paris: OECD, Centre for Educational Research and Innovation, 2004).

The Panel believes people with strong science and business backgrounds are often the key link between ICT research and its adoption in the marketplace. More generally, a well-educated workforce with a well-balanced skill set is critical for integrating enabling technologies with business strategy, organization and operations. The Canadian Software Human Resource Council has underlined this challenge area in its call to Canada to build an information technology-capable workforce.[41]

In Canada, the U.S. and other foreign jurisdictions, increasing attention is being paid to ensuring that curriculum development across diverse disciplines integrates and applies ICT skills and knowledge.[42]

### Lifelong Learning

Technological innovation in the workplace, including the adoption of new technologies and work processes, is creating new demands in the workforce for current members who lack a strong educational base and regular skills training. Canada does not compare well when it comes to firm investment in workplace training by individuals. For example, 31 percent of Canadian workers participated in employer-sponsored training, compared with 35 percent for the U.S. and 45 percent for the United Kingdom.[43] Employees in small and medium-sized enterprises are only half as likely to receive formal training as those in large enterprises.

The Panel believes the federal government should continue to work with other levels of government in Canada and the private sector to encourage a culture of lifelong learning and help employers enhance ICT related workplace skills.

## Measures to Promote Security, Confidence and Trust in an Online Environment

Notwithstanding the steps that have already been taken in Canada and internationally to promote security, confidence and trust in the online environment, the Panel heard from many stakeholders that there is much room for further work in such areas as privacy and protection of personal information with respect to transborder data flows, computer security, and consumer policy and regulation.

The following sections set out some of the issues that the Minister and the Advisory Council may wish to consider in developing measures to improve security, confidence and trust in the online environment.

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[41] Canadian Software Human Resource Council June 2005. Available online at: **http://www.shrc.ca/site_map.html**

[42] See, for example, the curriculum development work of the Association for Information Systems (AIS) undertaken with the participation of many academic institutions from around the world, including from several Canadian universities. One focus of this work has been to design model curricula based on a strong, increasing demand for university-trained graduates who can meet the changing needs of the information economy. The AIS model curricula are available online at: **http://www.aisnet.org/Curriculum/**

[43] OECD, *OECD Employment Outlook: 2003 — Towards More and Better Jobs*, p. 242, Table 5.1. Available online at: **http://www.oecd.org/dataoecd/62/57/31775229.pdf**

### The Protection of Privacy and Personal Information in International e-Commerce

The Public Interest Advocacy Centre, the Canadian Internet Policy and Public Interest Clinic, the Consumers Association of Canada, and the National Anti-Poverty Organization wrote in their joint submission to the Panel[44]:

> Another key area of policy development is protecting the privacy of Canadians. To date Canadians' privacy has been fairly well protected while using traditional telecommunications. This confidence is under stress. To reassure Canadians, who manifestly want more privacy protection in regard to telecom, the Panel should make privacy policy development a priority.

The Panel agrees that privacy policy development should be made a priority. The forthcoming parliamentary review of PIPEDA would be an appropriate opportunity for the full consideration of privacy issues within the context of rapidly changing technologies and increasingly networked domestic and international economies.

Without prejudging the scope or outcome of the parliamentary review of PIPEDA, the Panel believes one issue that deserves attention is the relationship between policies aimed at protecting privacy and personal information, on the one hand, and policies aimed at promoting the efficiency of e-commerce markets and ICT-enabled business operations, on the other, by facilitating the free flow of data across borders. The Panel believes there is a pressing need for information and analysis on this subject from a Canadian perspective, which should be made available in time for the parliamentary review of PIPEDA.

PIPEDA provides some protection for personal information on Canadians that is transferred to foreign jurisdictions. However, PIPEDA is primarily an instrument of domestic regulation. It is not designed to influence other governments' policies with respect to privacy and the protection of personal information, including information on Canadians that may be held within their borders as a result of e-commerce transactions.

To ensure that Canadians' rights are protected at home and abroad, the Panel believes the federal government should continue to work with other countries to develop international mechanisms for enforcement and regulatory cooperation in the area of privacy and protection of personal information.

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[44] Public Interest Advocacy Centre, Canadian Internet Policy and Public Interest Clinic, Consumers Association of Canada, and National Anti-Poverty Organization, "Comments of the consumer groups to the Telecom Policy Review Panel," Ottawa: August 15, 2005. Available online at: **http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/vwapj/Consumer_Groups-Submission.pdf/$FILE/Consumer_Groups-Submission.pdf**

### Computer Security

Existing and emerging computer security threats are significant and show no sign of diminishing. The Panel has been informed that Industry Canada is developing proposals for countering these threats by implementing the recommendations of the Task Force on Spam, establishing the National Cyber Security Task force, and working in close cooperation with other countries. The Panel is highly supportive of this work and believes Canada must respond as quickly and effectively as possible to existing and emerging computer security threats. It also believes the private sector should play a larger role in achieving this objective.

### Consumer Policy and Regulation

The Panel notes that considerable work has been done in recent years to create an environment in which consumers can be confident that businesses they deal with online are reliable and will not misuse their personal information, and that their transactions are secure. The Panel also notes that business-to-consumer (B2C) issues are a subset of a much broader range of ICT-related consumer issues. As described in a comprehensive 2004 report on consumer trends from Industry Canada's Office of Consumer Affairs[45]:

> Technological change — by its pace and scope — is transforming the marketplace. Technology has increased consumer choice, both in the form of entirely new products and services and in terms of a more diverse price/quality mix. But the challenge of keeping up with new technological applications and product information is affecting consumers' ability to navigate the marketplace. Rapid product turnover raises consumer issues such as the trouble and expense of upgrades, the risks borne by early adopters, and the potential for confusion — and costs — related to competing standards.

Federal, provincial and territorial governments share responsibility for the protection of consumers in Canada. The federal government is responsible for national marketplace standards and for ensuring a fair, efficient and competitive marketplace for producers, traders and consumers.

Through a variety of different initiatives, all levels of government have encouraged the private sector to develop market-based approaches to building consumer trust and knowledge, such as voluntary codes and standards, and redress approaches. However, to date, these initiatives have been largely *ad hoc* and there have been few rigorous studies evaluating their effectiveness. Moreover, the proliferation of voluntary codes — sometimes covering the same product areas — suggests a need to consider more formal approaches to recognizing and endorsing codes to ensure they have greater credibility with consumers.

The Panel is concerned that, across federal, provincial and territorial levels of government in Canada, consumer protection legislation has generally not kept pace with ICT-driven marketplace changes. The Panel also notes that there is no national consumer education and awareness program to enable consumers to navigate and safely operate within a marketplace that is increasingly information intense and vastly more complex than it was, even 10 years ago.

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[45] Industry Canada, Office of Consumer Affairs, *The Consumer Trends Report* (Ottawa: Industry Canada, 2004). Available online at: http://strategis.ic.gc.ca/epic/internet/inoca-bc.nsf/en/ca02084e.html

### Other Components

As mentioned previously, the Panel presents recommendations regarding the sixth key component of the national ICT adoption strategy — measures to achieve ubiquitous access to advanced broadband networks and services — in the next chapter.

In addition to the six strategic components proposed by the Panel on the basis of submissions it received and the research it conducted, the Panel expects that the National ICT Adoption Centre and Advisory Council will identify additional components that should be included in the strategy. In particular, the Panel anticipates that new strategic challenges will arise and that new policy issues will emerge as the ICT adoption initiatives proposed here begin to be implemented, and as the new telecommunications regulatory framework recommended in this report begins to support the transformation not only of Canada's telecommunications and ICT networks, but also of the businesses, governments, public service organizations and communities that increasingly depend on them.

Implementing the strategy set out in this chapter is therefore only the beginning of a long-term commitment to becoming smart adopters of ICTs throughout Canada's economy and society, and to becoming world leaders in maximizing the benefits of ICTs in every area of life.

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# Chapter 8

# Connectivity: Completing the Job

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## Reaffirming Canada's Commitment

Canada was among the first countries to recognize the potential for information and communications technologies (ICTs) to transform and enrich economic and social life. Since 1993, it has been the policy of the federal government and most provinces to increase the level of electronic "connectedness" of Canadian consumers and businesses to each other and to the world. Over the past decade, the federal government has made investments of close to $600 million toward advancing the connectivity agenda.

As a result of one of these investments, the federal government's SchoolNet program,[1] Canada became the first country in the world to connect all of its schools and libraries to the Internet. Industry Canada's Community Access Program[2] (CAP) now provides Internet access in a public setting to some 100 000 Canadians each day, and it has provided training to 19 500 community volunteers through its cross-Canada network of public Internet sites.

In 2000, the federal government set a policy goal of ensuring that broadband networks and services would be available to businesses and residents in every Canadian community. The National Broadband Task Force was established to recommend how the federal government's broadband access goal could be achieved. In response to the 2001 task force report,[3] Industry Canada launched the Broadband for Rural and Northern Development (BRAND) pilot program in 2002 and the National Satellite Initiative (NSI) in 2003.[4] In addition to the BRAND program, other federal government departments, provinces and territories have sponsored broadband access programs in various parts of Canada.

While these public sector investments were important, market forces played an even more significant role in making Canada a global leader in broadband deployment. By the mid-1990s, a vigorously competitive broadband market was developing in Canada. Both cable and telephone companies began offering high-speed access over upgraded facilities in urban centres in the mid- to late 1990s. Canadian cable companies were global pioneers, providing cable modem services as early as 1996. The subsequent large-scale deployment of broadband over DSL (digital subscriber line) technology by the incumbent Canadian telephone companies propelled Canada to the second-highest level of broadband service penetration in the world by 2003.

In 2000, the Organisation for Economic Co-operation and Development (OECD) began reporting on broadband penetration in its member countries. At that time, Canada's broadband penetration rate was 4.5 percent, measured by the number of broadband subscribers per 100 inhabitants. In the past five years, our broadband penetration rate has increased fourfold, and the share of the population who are paying subscribers now stands at 19.2 percent, according to the latest

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[1] For more information on SchoolNet, see website at: **http://www.schoolnet.ca/**

[2] For more information on Community Access Program, see website at: **http://cap.ic.gc.ca/index.htm**

[3] Report available online at: **http://broadband.gc.ca/pub/program/NBTF/index.html**

[4] For more information on the federal government's broadband program, see website at: **http://www.broadband.gc.ca**

OECD statistics.[5] Using a different metric, the Canadian Radio-television and Telecommunications Commission (CRTC) reports that broadband access services are now available to 89 percent of all Canadian households, 98 percent of urban households and 69 percent of rural households. The Commission also reports that about 48 percent of households that have access to broadband subscribe to the service.[6]

The impressive growth of broadband in Canada over the past five years is mainly the result of the expansion of competitive commercial markets. The broadband initiatives of the federal, provincial and territorial governments have also played an important part in helping to close the "broadband divide." However, many rural and First Nations communities lack broadband access, and there are still unserved areas not far from major urban centres.

As discussed in Chapter 7, Information and Communications Technology Policy, the Panel believes the smart adoption of ICTs is essential to increasing Canada's productivity and competitiveness, improving the efficiency and quality of education, health care and other public services, and providing opportunities for all Canadians to participate in and contribute to our society.

Access to broadband is becoming a prerequisite for sharing in the economic and social benefits of a broad array of new ICT services and applications in the private and public sectors. This is the case in rural and remote areas of our country, just as it is in the more urban areas of southern Canada. Broadband access will make it possible to bring the following kinds of benefits to unserved areas of Canada:

- **Improved primary and secondary education and new opportunities for post-secondary education, training and lifelong learning:** Broadband can provide students, teachers, trainers and self-directed learners with access to online courses and educational materials, and connect them with colleagues and peers in order to share information and work together on projects.
- **Improved health care:** Broadband can help deliver better health care services to rural and remote areas by allowing medical professionals based in these areas to obtain diagnostic services and real-time assistance from colleagues in larger centres. It can also give residents of rural and remote areas improved access to information that may help prevent disease and promote healthy lifestyles.
- **New and improved business opportunities:** Broadband makes it possible to use innovative online marketing and e-commerce services to generate growth in tourism, recreation and other service industries, which are becoming important sources of employment in many rural and remote areas. Broadband access is also essential to improving the productivity and competitiveness of resource-based, agricultural and manufacturing industries.

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[5] See OECD, *Broadband Statistics, June 2005*. Available online at: **http://www.oecd.org/document/16/0,2340,en_2649_34225_35526608_1_1_1_1,00.html**

[6] CRTC, *Report to the Governor in Council: Status of Competition in Canadian Telecommunications Markets* (Ottawa: CRTC, October 2005), p. 91. Available online at: **http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2005/gic2005.pdf**

- **Stronger rural and remote communities:** Broadband can help empower residents of rural and remote areas by improving access to information about public policy issues affecting their communities, and facilitating engagement in governance activities at every level from local to national.
- **Enhanced cultural opportunities:** Broadband opens access to a wide range of entertainment products and services. It also provides opportunities to develop new forms of cultural expression and preserve traditional languages and cultures.

As well as offering improved education, health care and economic opportunities, access to broadband in unserved areas of the country will help ensure all Canadians have the opportunity to participate in the "global information society."[7]

In the age of globally connected networks, distance no longer poses the kinds of obstacles to economic and social participation that it did in the past. Individuals and communities not only are consumers, but also are becoming producers of information products and services. Mass markets and standardized products are giving way to differentiated market segments and customized solutions. Diversity is being recognized as a potential source of strength in the global environment. Creativity and control are shifting from the centre toward the edge — in networks, in corporations, in communities and in countries.

In order to maximize Canada's potential, we need to leverage our geographic and demographic diversities and give everyone an opportunity to contribute to building a stronger, more prosperous country, no matter where they live. Social and economic inclusion should no longer be seen as a problem, but as an opportunity that must be seized.

While Canada has been acknowledged to be one of the most connected countries in the world, we must continually benchmark ourselves against other countries, and adjust our policies to continue to reap the potential economic and social benefits of evolving telecommunications technologies. If we fail to respond to the challenge of change, we run the risk of compromising our competitive position as one of the leaders of innovation in the 21st century global networked economy.

According to OECD data, Canada's broadband leadership position is slipping. In 2003, we were second among OECD countries in the number of subscribers to high-speed Internet services per 100 inhabitants. By June 2005, we had dropped to sixth.

Given the increasing importance of broadband access for full participation in 21st century society, the Panel believes the federal government should reaffirm its commitment to maintaining Canada's global broadband leadership and to ensuring that broadband access is available everywhere in the country.

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[7] See **http://www.itu.int/WSIS** for information on the United Nations World Summit on the Information Society, which took place in Geneva in 2003 and Tunis in 2005, and for access to related information resources.

**Recommendation 8-1**

**As a key part of its national ICT strategy, the federal government should**

**(a) ensure that Canada remains a global leader in the deployment of broadband networks, and**

**(b) immediately commence a program to ensure that affordable and reliable broadband services are available in all regions of Canada, including urban, rural and remote areas, by 2010 at the latest.**

Canada is rightly proud of its achievements in reaching a high level of penetration of voice telecommunications services. Wireline and wireless voice services are available to more than 99 percent and almost 98 percent, respectively, of Canadian households, and more than 98 percent are connected to networks providing such services.[8] This penetration level is so high that it has been referred to as "universal" or "ubiquitous" coverage. In the Panel's view, Canada should aim to achieve comparably ubiquitous levels of broadband service penetration by 2010.

This is an ambitious target but, even if we reach this goal, the job of connecting Canadians through ubiquitous telecommunications networks will not be done. The challenge of achieving ubiquitous access to telecommunications networks is ongoing and evolves anew with each new generation of technology. In the 1990s, connecting all Canadian schools through dial-up modem was an innovative and pioneering objective, but today this objective is no longer sufficient. Current broadband networks represent a quantum advance over traditional telephone networks. However, they are only the latest stage in the evolution of telecommunications networks. They will be surpassed as the capacity of networks continues to evolve in response to demand for new services and applications. The fivefold increase in broadband speed that took place between 2000 and 2005 is the beginning of the broadband story, not the end.

As broadband and other technologies evolve, our continuing challenge will be to ensure that advanced telecommunications technologies become available to all Canadians within a reasonable period of time.

**Recommendation 8-2**

**The federal government should continually monitor technological developments in the telecommunications sector, assess their economic and social implications, and adopt policies to ensure that Canada continues to be a leader in the deployment of advanced telecommunications services.**

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[8] Statistics Canada and CRTC Monitoring Report, 2005. The precise number for combined wireline and wireless penetration is 98.8 percent.

## New Policy Foundations

### General Approach

In Chapter 2, Policy Objectives and Regulation, the Panel sets out a number of fundamental principles that should guide Canada's telecommunications policy. Three of these principles are particularly relevant to the challenge of achieving ubiquitous broadband access. These are:

- to rely primarily on market forces to achieve telecommunications policy objectives
- to use well-targeted government measures in cases where the market has failed or is likely to do so
- to ensure that government measures are efficient and proportionate to their objectives.

In considering how to apply these principles to Canada's challenge of keeping its citizens among the most connected in the world, one should first determine how much competitive telecommunications markets can do on their own. In this regard, the Panel notes that decreases in the price of access technologies combined with the development of new wireless technologies like WiMAX and higher-capacity satellite services will allow previously uneconomic areas to be served by the market. Such areas are likely to be served by both regulated incumbent telephone and cable companies and by new entrants, many of whom are likely to use low-cost new wireless services.

In seeking to apply its general policy principles to the challenge of achieving ubiquitous broadband access, the Panel faces two key questions:

- Can market forces alone be relied on to meet this objective?
- If not, what kind of government action would be needed?

Many participants in the Panel's Access Forum in Whitehorse in September 2005, including provincial and territorial governments and local communities, were of the view that market forces alone would not provide ubiquitous broadband access in the near future. Many of the submissions sent to the Panel in response to its Consultation Paper[9] shared this perspective. However, a consultant's study submitted to the Panel in the first round of written consultations concluded that market forces alone could result in ubiquitous broadband access to broadband by 2010.[10] This finding was challenged in the second round of written consultations and was questioned by other parties.

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[9] Telecommunications Policy Review Panel, *Consultation Paper* (Ottawa: the Panel, June 6, 2005). Available online at: **http://www.telecomreview.ca/epic/internet/intprp_gecrt.nsf/vwapj/Consultation_Paper_Final_Clean_E.pdf/$FILE/Consultation_Paper_Final_Clean_E.pdf**

[10] See SECOR Consulting, "Broadband Access for Every Canadian Home: The Business Case" (Montréal: Bell Canada, August 2005). Available online at: **http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/vwapj/Appendix_E3.pdf/$FILE/Appendix_E3.pdf**

To better understand these conflicting views, the Panel conducted its own study to assist in estimating whether market forces alone can achieve the objective of achieving ubiquitous broadband availability by the end of this decade. The study began by constructing a highly detailed map of Canada that identified areas where broadband is not currently available and showed the location of the network access point nearest to each unserved area. Using geographic, engineering and financial data, the study then estimated the cost of providing broadband access in these unserved areas through the most cost-efficient solutions. Using population data and benchmarks from the business cases of existing broadband service providers in rural and remote areas, the study segmented the currently unserved market. It identified areas where a viable business case might exist if least-cost technologies were used to extend broadband networks to these areas and to provide access within them. It also identified areas where some form of subsidy likely would be required to make broadband available on a basis that would be sustainable, scalable and upgradable as markets grow and technology evolves.

As noted previously, the CRTC has reported that approximately 89 percent of Canadian households currently have access to broadband. On the basis of its study, the Panel estimates that ongoing initiatives will increase this number to 91 percent by the end of 2007. The Panel's analysis further suggests that there is a potentially positive business case for providing broadband access to a significant number of currently unserved Canadians by using low-cost wireless technologies, assuming that the private sector chooses to make such an investment. Nevertheless, the study finds that there is not a viable business case in all areas and that, without some form of government intervention, a significant number of Canadians will remain without broadband access. The study concludes that after taking into account the maximum likely level of "sustainable" private sector investment, approximately 1.5 million people — about 5 percent of Canada's population — will remain unserved.[11]

Taking into account the findings of its study (see Annex A), the submissions of interested parties and the other information available to it, the Panel concludes that market forces alone will not provide Canada with ubiquitous, affordable broadband access by 2010.

**Recommendation 8-3**

**Federal government policy should recognize that market forces**

**(a) will continue to expand the availability of broadband access across the country, but**

**(b) will not on their own achieve the policy objective of deploying ubiquitous broadband access by 2010, particularly in rural and remote areas.**

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[11] The Panel's study was based on average estimated costs, prices and take-up rates for extending broadband service to unserved areas. Actual figures are likely to vary significantly among unserved areas because of differences in terrain and population density. On February 16, 2006, the CRTC released Telecom Decision CRTC 2006-9, "Disposition of Funds in the Deferral Accounts," which decided that funds set aside in so-called "deferral accounts" by a number of incumbent local exchange carriers (ILECs) should be directed primarily to the expansion of broadband services in these ILECs' territories. The Panel's analysis indicates that, even if all of these deferral account funds were directed to expanding broadband services in uneconomic areas of the relevant ILECs, a significant number of Canadians would remain without broadband access.

### Funding Mechanisms

As stated throughout this report, the Panel believes as a matter of general principle the federal government should rely primarily on market forces to achieve Canada's telecommunications policy objectives, but that well-targeted, proportionate government measures should be used in cases where the market fails to do so.

Some submissions to the Panel proposed that government subsidies should be used to extend broadband access in rural and remote areas. Others suggested that broadband access should be funded by the telecommunications industry itself; for example, through a contribution fund of the kind the CRTC has used to subsidize the cost of providing basic service to customers in high-cost service areas.

As discussed in Chapter 3, Economic Regulation, in the monopoly era of telecommunications, cross-subsidies between various telecommunications services helped achieve universal, affordable access to basic service. However, with the onset of competition, such cross-subsidies have gradually been replaced by more targeted subsidies. The CRTC-regulated contribution fund is a more direct form of subsidy that continues to play an important role in supporting universal access to basic telecommunications services today. The Panel supports the continuing use of the contribution fund for this purpose.

In general, however, the Panel believes cross-subsidies between classes of telecommunications service consumers are an inappropriate means of achieving policy objectives in a competitive telecommunications industry. If inter-service subsidies remain small, like the CRTC's contribution fund subsidies, then economic distortions and inefficiencies are minimized. However, if the contribution fund were expanded significantly to finance broadband expansion programs, the price distortions and inefficiencies would increase to an unacceptable level. This would distort markets and result in an inefficient allocation of resources by artificially lowering the prices of some services and raising the prices of others.

Internal cross-subsidies are also undesirable from the viewpoint of social equity. Since the cost of providing subsidies is passed onto consumers, and since all consumers contribute at the same rate regardless of income, internal cross-subsidies effectively impose a regressive tax on the customers of telecommunications service providers.

The Panel is also concerned that the changing structure of the telecommunications industry makes internal cross-subsidies increasingly unsustainable. Previously, the majority of service providers could be included in such programs, whether they were incumbents or new entrants. However, that opportunity is eroding as new types of services provided by new types of competitors emerge from outside the telecommunications industry, for example, Internet-based providers of PC-to-PC voice over Internet Protocol (VoIP) services.

In the changing telecommunications environment described in Chapter 1, a telecommunications provider or subscriber tax designed to subsidize the extension of broadband would put an unfair burden on traditional telecommunications providers and their customers, while some new entrants such as web-based service providers and their customers would be exempt. These solutions appear neither efficient nor fair.

For all these reasons, the Panel has concluded that the CRTC contribution fund should not be used to finance expansion of broadband access.

Ubiquitous broadband availability is a desirable national policy objective in terms of both economic and social policy. In line with the basic economic and policy principles expressed in this report, the Panel believes where the market fails, the cost of achieving important economic and social goals should be shared by all Canadians. Accordingly, the Panel believes federal government tax revenues should be used to fund an efficient, targeted subsidy program designed to achieve ubiquitous broadband access. In this report, the Panel proposes a specific form of subsidy program that is tailored to meet the policy objective of ubiquitous broadband access in an effective and economically efficient manner.

**Recommendation 8-4**

**A specific, targeted government subsidy program, the Ubiquitous Canadian Access Network/ Ubiquité Canada or U-CAN program, should be established to ensure that broadband access is made available to Canadians in areas where commercial operators are not providing service and are unlikely to do so for economic reasons.**

## Building on Past Broadband Initiatives

A number of lessons can be learned from Canada's previous broadband programs. These were pointed out to the Panel through written submissions received in response to the Consultation Paper, discussions at the Whitehorse Access Forum and the Gatineau Policy Forum, and consultations with various stakeholders. These lessons should be applied to the design, development and implementation of the U-CAN program. This will help ensure that Canadian taxpayers' money is well spent, and that the goal of achieving ubiquitous access to broadband by 2010 is achieved as efficiently and effectively as possible.

## Including All Canadians

BRAND was successful in connecting over 900 communities that would not otherwise have had access to broadband. However, BRAND was designed as a pilot program. Its limited funding was insufficient to respond to all the requests it received, let alone to connect all communities. Since there were more applications for participation in the program than could be funded, a competitive process was developed to allocate available funds, and many communities' applications were turned down.

The Panel believes the time for pilot programs that achieve partial results is over. Broadband access should be expanded to all regions of Canada, not just selected communities.

Canada's goal, as we have recommended, should be to achieve ubiquitous, affordable broadband access as rapidly as possible. Given scarce public resources and the ability of market forces to achieve most of this goal, the main purpose of the U-CAN program should be to fill in the gaps in broadband coverage in Canada. U-CAN should be targeted at areas where the market is unlikely to provide broadband coverage in the near future because projected customer revenues are insufficient to cover the costs of deploying and operating broadband networks.

The Panel believes a program designed to achieve ubiquitous broadband availability should not be focused on individual "communities" that develop business plans and compete with each other for funds. The program should be aimed at broader coverage than selected communities. At the same time, the design of the program should be flexible enough to meet the access requirements of a wide range of communities and regions, since Canada's diverse geography clearly means "one size does not fit all." Finally, taking into account the fact that different areas of the country have different levels of deployment, the Panel considers that subsidies should be made available based on actual requirements to complete the job, rather than on per capita or other formulas.

**Recommendation 8-5**

**The U-CAN program should aim to complete the job begun by BRAND of providing ubiquitous broadband throughout all regions in Canada that the market is not likely to serve on its own by 2010.**

**Recommendation 8-6**

**The budget allocation for the U-CAN program should be based on the projected costs of providing broadband connectivity to the remaining unserved areas of Canada. The funds should be assigned based on the projected cost of achieving such connectivity in each region.**

### Flexible Implementation

Different areas of the country have different broadband needs and are at different stages of broadband readiness. In some areas, a one-time capital subsidy may be enough to provide broadband access on a sustainable basis. In other areas, operational expenses may also need to be subsidized for a period of time until a break-even point is reached. In still other cases, providing broadband access may never be economically viable without ongoing subsidy.

As well as having different financial needs, unserved areas are not all at the same starting point. In some areas, some service providers have the skills and other capacities needed to build and operate broadband access networks, and to develop local applications and services. Others need assistance in becoming broadband ready. To be effective, the U-CAN program must take these differences into account and avoid adopting a "cookie cutter" approach.

**Recommendation 8-7**

**The U-CAN program should be flexibly designed and implemented to reflect the needs of stakeholders in regions to be served, including governments, communities and the private sector.**

### Coordination

Telecommunications service providers, departments and agencies of the federal government, the provinces and territories, municipalities and community organizations have all contributed to the expansion of broadband access in Canada through past and current initiatives. In the Panel's view, all these players should be stakeholders in the U-CAN program.

Experience from previous broadband programs has shown that the best results are obtained when stakeholders are consulted in program design and development, and initiatives are implemented in a coordinated fashion. Prior to undertaking a broadband expansion initiative in any region, the U-CAN program administrators should conduct a public consultation process. The goal of this process should be to avoid duplication of public and private sector efforts, to understand the programs of different jurisdictions and departments of government, and to ensure that program initiatives align with regulatory requirements imposed on telecommunications service providers. In particular, the U-CAN broadband initiatives should supplement, and not duplicate, infrastructure projects mandated under CRTC-approved service improvement plans or broadband infrastructure projects that may be funded out of the CRTC-established price cap deferral accounts.

The U-CAN program and other federal government broadband initiatives such as those aimed at serving First Nations should ensure coordination and efficient use of public funds, and should not inadvertently stifle or duplicate market-based initiatives to roll out broadband networks. In general, there should be better ongoing coordination among federal and provincial broadband expansion programs to increase their effectiveness and to avoid duplication and inconsistent market signals. The National ICT Adoption Centre described in Chapter 7 should be authorized to play this coordination role.

**Recommendation 8-8**

**U-CAN broadband expansion initiatives should be implemented only after coordination with those involved in other broadband expansion programs of the private sector, federal government departments and agencies as well as other levels of government.**

### Community Involvement

The purpose of U-CAN is to help make the benefits of broadband available to Canadians living in all regions of the country. To be effective and to justify the cost of the U-CAN program, broadband access must provide local solutions to local requirements, whether for improved education and health care, innovative business and job opportunities, improved governance or cultural expression.

Local broadband benefits should be maximized through active involvement of local businesses, residents and providers of education, health care and other public services. For economic and social reasons, community involvement is essential for a successful program.

**Recommendation 8-9**

**The U-CAN program administrators should develop broadband expansion initiatives in consultation with community members and organizations who can help define community access needs.**

As many submissions to the Panel pointed out, in order to reap the full potential benefits of broadband access, communities need much more than access to technology. They also need access to the tools that will help them improve their broadband readiness and help their members not only learn how to use technology, but also develop applications and services tailored to their needs. As in the case of technology, there are no "one size fits all" solutions for these learning needs. They vary with geographic and demographic factors as well as with social and economic circumstances.

In Chapter 7, the Panel recommends that the federal government develop a national ICT strategy that, among other things, would provide all Canadians with the information and skills needed to better use ICTs to reach their economic and social potential. The Panel also recommends creating a National ICT Adoption Centre to plan and coordinate the implementation of this strategy with relevant federal and provincial government departments and agencies. In addition to these duties, the Panel recommends making the National ICT Adoption Centre responsible for administering the U-CAN program.

In carrying out these responsibilities, the National ICT Adoption Centre should ensure that residents of rural and remote communities included in U-CAN have access to federal and provincial government programs that help build capacity to use ICTs at the local level, for example, through online training and skills development.

The National ICT Adoption Centre should also ensure that federal and provincial economic development agencies are aware of forthcoming broadband deployments under the U-CAN program, so these agencies can help rural and remote communities served through U-CAN capture the potential economic benefits of broadband.

### Private and Public Ownership

The BRAND program emphasized private sector ownership in order to encourage the development of sustainable business models that would not require ongoing public subsidy. However, the Panel notes there are communities where local broadband access has been provided by municipal government, and some areas where local organizations or public authorities such as municipalities also own backhaul facilities. In addition, there are areas where there is a broadband point of presence but no local access network, because there is no business case for building one. In such areas, public ownership may be an option. On the other hand, there are also cases in which publicly owned or subsidized networks have duplicated existing or planned private sector network builds. In line with the general principle that the objectives of Canadian telecommunications policy should be achieved primarily through market forces, the Panel believes existing or planned privately owned networks should not be duplicated using public subsidies. At the same time, however, the Panel would not discourage public ownership or subsidies in areas where no such networks exist and where a business case for expansion of broadband networks is unlikely to emerge.

**Recommendation 8-10**

**The U-CAN program should not promote the duplication of existing or planned network facilities with networks that are subsidized by municipal, provincial or federal government funds. However, investment and subsidies by public bodies such as municipalities should not be discouraged in areas where the market fails to provide broadband access.**

### Ensuring Open Access

The BRAND experience showed that even though the provision of open access to transmission and access facilities was a condition of funding, practical problems arose in the implementation of this condition. The Panel believes U-CAN-funded backhaul networks should be open to third-party providers of local access services as a condition of receiving subsidies. In addition, the rates charged to such third parties for access to subsidized networks should be discounted to reflect the subsidies received and to ensure a level playing field between competing service providers.

**Recommendation 8-11**

**When subsidies are provided to network operators to expand backhaul networks into previously unserved areas, such operators should be required as a condition of obtaining the subsidy, or by regulation**

**(a) to provide transmission services to other local service providers who wish to serve the areas, and**

**(b) to provide these services at rates that are discounted to reflect the subsidies received.**

**Recommendation 8-12**

**Contracts entered into between the U-CAN program and providers of backhaul services should specify the technical, operational and financial requirements that must be met to ensure that the points of presence provided by backhaul operators are open to other service providers on a fair and reasonable basis. These specifications should include such matters as**

**(a) physical access to buildings and other facilities,**

**(b) performance quality standards,**

**(c) high standards of security and scalability,**

**(d) collocation and modification of equipment, and**

**(e) rates for access and interconnection.**

## U-CAN Program Guidelines

### Using Market-based Mechanisms

The first step in developing the U-CAN program will be to identify areas unlikely to be served by market forces alone by 2010. As previously discussed, this exercise should be completed in consultation with private sector service providers, relevant federal and provincial government organizations and community representatives. Once these areas have been identified, the Panel believes the best approach to fund expansion of broadband access networks in each of these unserved areas is to hold least-cost subsidy auctions. Such auctions would act as the necessary catalyst to get the job of filling broadband access gaps done by 2010.

Under this approach, private sector service providers, including incumbents and new entrants as well as interested community-based groups, could submit proposals to provide broadband service in a defined area. The subsidy funding should be awarded to the proposal that requires the smallest subsidy, provided that it demonstrates it has the technical, financial and managerial capacity to construct and operate the necessary broadband network infrastructure.

This model contains market-like incentives that should encourage innovation. It also promotes "right size" solutions that would reduce the overall costs to the taxpayer and encourage use of the most efficient technological solution. Unlike BRAND, it would not require communities to organize themselves in order to aggregate demand, develop business plans and compete for funding, except in those cases where communities choose to do so.

**Recommendation 8-13**

**The U-CAN program should provide subsidies to broadband network providers by means of least-cost subsidy auctions.**

**Recommendation 8-14**

**Auctions should be run for large service areas at a time, in order to increase efficiencies of service provision. These service areas should be designated in consultation with provincial or territorial governments, after assessing current and planned coverage of existing broadband network operators.**

### Separating Access and Backhaul

The Panel notes that the challenge of providing a broadband network point of presence (PoP) in an unserved area and of providing backhaul from that PoP to regional, national and international backbone networks is significantly greater than the challenge of providing local broadband access within an unserved area, once a PoP has been established.

The cost of providing local access networks in many cases is relatively low compared with the cost of providing high-capacity links between backbone networks and local PoP, even when least-cost technologies are used. Different technical, operational and financial capacities are needed to design, build and operate local access and backhaul networks, to scale their capacity in response to changing demand and to upgrade as new technologies become available.

As a general rule, access and backhaul should be treated as separate components of the U-CAN network expansion initiatives. Backhaul typically involves provision of high-speed microwave or fibre transport facilities between Internet access points and designated PoPs within the service area. Access, on the other hand, involves providing service on demand to users within the service area, by means of technologies chosen by the bidders in an auction, such as fixed wireless, DSL or cable.

**Recommendation 8-15**

**In most cases, the U-CAN program should hold separate auctions for the backhaul network and local access facilities within each unserved area. Such auctions should generally be held at the same time.**

**Recommendation 8-16**

**The U-CAN program should enter into contracts for access and backhaul services with the service provider who**

**(a) demonstrates it has the necessary technical and financial qualifications to successfully deploy and operate the broadband backhaul or access service for the duration of the contract, and**

**(b) submits the lowest bid for the subsidy it requires to implement and operate the project.**

**Recommendation 8-17**

**Sufficient amounts of appropriate spectrum should be made available on a licensed or unlicensed basis to service providers who are awarded subsidies under the U-CAN program.**

### Enforcing Commitments

In U-CAN, as in any publicly funded program, it is essential to ensure that subsidies and assigned spectrum resources are used only for the purposes of expanding broadband access in the unserved areas. Contracts between the U-CAN program and successful bidders to provide backhaul and access services should specify that subsidies and licensed spectrum will be forfeited if service providers do not comply with contractual provisions concerning time frames for introducing service and providing open access.

> **Recommendation 8-18**
>
> **Recipients of U-CAN broadband access subsidies who fail to provide service on time and in accordance with U-CAN contract specifications should forfeit the subsidy and any spectrum assigned to them, and should be subject to contractual penalties. The U-CAN program should then hold a new auction to serve the area and reassign the related spectrum.**

### Ensuring Competitive and Technological Neutrality

Because of the rapid evolution of technology, it is critical for U-CAN to be technologically neutral. The Panel believes there is great potential for the delivery of broadband to remote communities via new wireless access technologies such as WiMAX. However, no one can say for certain what technology will be the best two, three or five years from now. The Panel is recommending that the U-CAN program adopt a competitive technologically neutral approach. This approach should stimulate innovation and ensure that government subsidies are not used inefficiently or for obsolescent technologies.

> **Recommendation 8-19**
>
> **The U-CAN auction process should be technologically and competitively neutral. Private sector service providers as well as regional and community organizations should be permitted to participate in the auctions, provided that they can demonstrate technical capability and financially sustainable business plans.**

### Evaluating Progress

The lessons the Panel learned from the experience of previous broadband programs were very helpful in developing recommendations for U-CAN. However, in identifying these lessons, the Panel had to rely on material contained in submissions, in presentations and discussions that took place at the Whitehorse and Ottawa forums, and in consultations with stakeholders, rather than on any formal program evaluation or assessment reports.

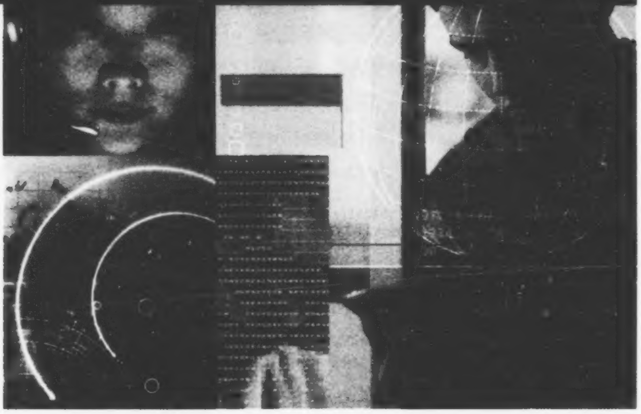
The Panel believes formal program evaluation requirements should be built into U-CAN from the beginning, and that efforts should be made to learn lessons from previous connectivity programs, particularly those that are still in place. The National ICT Adoption Centre should administer this program in order to examine lessons learned, and to identify "best-case, worst-case" projects. The results of this review should be used to provide information on "best practices," avoidable problems, and available technical and other solutions.

> **Recommendation 8-20**
>
> **There should be effective tracking and periodic evaluation of the U-CAN program, and improved tracking and evaluation of other ongoing federal government broadband and connectivity programs.**

# 9

## Chapter 9

# Policy-making and Regulatory Institutions



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The major policy and regulatory changes proposed in this report have necessitated a review of the Canadian telecommunications institutional framework. The Panel has considered whether the current institutional arrangements are the best ones to implement the proposed regulatory framework and to deal with the challenges of the more competitive and dynamic telecommunications markets of the future.

Canada was an early leader in developing modern policy-making and regulatory organizations in the communications sector. Late in the 1960s, Canada was one of the first countries to establish a single communications policy-making institution for telecommunications, broadcasting and other information and communications technology (ICT) matters — the Department of Communications. It was also one of the first countries to establish an independent regulator — the Canadian Radio-television and Telecommunications Commission (CRTC) and its predecessors. In the 1970s, Canada was one of the first countries to recognize convergence and to authorize a single regulator, the CRTC, to regulate both the telephone and broadcasting industries.

In the 1980s and 1990s, the CRTC led most of the world in the adoption of market-based approaches to telecommunications regulation. During this period, it removed barriers to competition and moved away from regulated prescription of the terms and conditions of services and pricing in competitive telecommunications markets. It recognized earlier than most of its OECD counterparts that market forces could achieve better results in telecommunications markets than regulated top-down control of monopolies. A move toward greater reliance on market forces was included in the 1993 *Telecommunications Act*, which granted the CRTC's authority to forbear from regulation in certain circumstances.

During the course of its mandate, the Panel reviewed the telecommunications regulatory regimes and approaches of numerous member countries of the Organisation for Economic Co-operation and Development (OECD). It also had the opportunity to meet and to discuss these approaches with regulatory representatives of many of these countries and related international organizations, including the Federal Communications Commission (FCC) in the United States, the United Kingdom's new regulator, the Office of Communications (Ofcom), France's telecommunications regulator, the Autorité de Régulation des Télécommunications (ART), authorities from Japan, South Korea, New Zealand, Australia, the International Telecommunication Union and the OECD itself.

Based on these discussions, the Panel concludes that there is room for substantial improvement in the effectiveness of the Canadian telecommunications policy-making and regulatory framework. In comparison with leading OECD countries, the Panel considers that there are areas for improvement in both the current Canadian approach to policy making and regulation and in the institutional arrangements that support them. Following are some of the Panel's major areas of concern:

- There is a lack of clarity and separation between the roles of policy making and regulation.

- There is a comparative lack of clear policy direction in Canadian telecommunications laws and other government policy instruments.[1]
- There is a comparative lack of policy-making, research and analysis capabilities within the government, the regulator and the sector generally.
- There are increasing inconsistencies and tensions among the institutions, policies, laws and regulations governing various parts of the converging telecommunications, broadcasting and Internet markets.
- Canada has more relatively intrusive, complex and costly regulation of major telecommunications service providers, with more extensive prior regulatory approval requirements and longer regulatory delays.
- The regulatory framework lacks effective safeguards, such as *ex post* review powers and fines, that would permit more timely deregulation of telecommunications markets, while maintaining important oversight capabilities and remedies.
- Canada has an exceptionally large number of regulatory commissioners compared with any other OECD country.
- The CRTC has insufficient authority and capacity to retain highly qualified staff and consulting expertise, compared with some other regulatory agencies.

The Panel's objective in conducting its policy review is not to address problems of the past. Rather, the Panel seeks to fulfil its forward-looking mandate to "make recommendations on how to implement an efficient, fair, functional and forward-looking regulatory framework that serves Canadian consumers and businesses, and that can adapt to a changing technological landscape."

As a result, the Panel proposes some major changes to the structure and operations of Canada's policy-making and regulatory institutions. Broadly speaking, these changes are aimed at achieving the following objectives:

- to better equip these institutions to implement the new policy and regulatory approaches proposed in this report
- to clarify the roles and relationships of these institutions
- to improve the effectiveness, timeliness, cost-efficiency, transparency and accountability of their operations.

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[1] As discussed in Chapter 2, the policy objectives currently set out in s. 7 of the *Telecommunications Act* are unclear and inconsistent with each other and generally are silent on the preferred regulatory means of achieving these objectives. No policy objectives are set out in the *Radiocommunication Act*. Although the *Telecommunications Act* authorizes the government to issue telecommunications policy directions to the CRTC, none have been issued.

If the proposed new regulatory framework is adopted, policy-making capabilities of the government will be strengthened and made more flexible to meet the changing telecommunications environment. Regulation will become more focused and better designed to meet certain specific objectives, including important social and technical objectives.

## Summary of Proposed Institutional Reforms

This report proposes a number of changes to the structure and operations of Canada's policy-making and regulatory institutions. Many of these changes are dealt with in the context of the regulatory reforms discussed in earlier chapters of the report. This chapter proposes some additional reforms that the Panel considers would be useful to ensure that Canada's regulatory framework is more responsive to the challenges of the more dynamic telecommunications sector — now and in the future.

The following table summarizes the major structural and operational reforms for government institutions that are proposed in this report and indicates the main chapter of the report that addresses them.

| Proposed Reforms | Relevant Chapters of Report |
|---|---|
| Improving the Canadian government's policy-making process for telecommunications and ICTs | • Ch. 7. ICT Policy<br>• Ch. 9. Policy-making and Regulatory Institutions |
| Separating policy-making and regulatory functions between Industry Canada and the CRTC | • Ch. 5. Technical Regulation<br>• Ch. 9. Policy-making and Regulatory Institutions |
| Reducing CRTC economic regulation and establishing a Telecommunications Competition Tribunal, and the relationship between the CRTC and the Competition Bureau | • Ch. 3. Economic Regulation<br>• Ch. 4. Telecommunications Competition Tribunal |
| Establishing a Telecommunications Consumer Agency | • Ch. 6. Social Regulation |
| Reviewing the relationship between the CRTC and the Privacy Commissioner | • Ch. 6. Social Regulation |
| Reforming the structure, operations and procedures of the CRTC | • Ch. 9. Policy-making and Regulatory Institutions |
| Improving policy-making and regulatory frameworks to reflect the convergence of telecommunications, broadcasting and the Internet and to address foreign ownership of telecommunications carriers | • Afterword |

## Improving the Policy-making Process

The Panel believes that a number of reforms should be made to the process of developing telecommunications and ICT policy, as well as in the manner of implementing such policies.

The major changes to policy making and policy implementation recommended in this report are:

- improving the capacity of Canadian government and non-government organizations to develop telecommunications policies that respond to the rapidly changing environment
- reforming the process of transmitting government policy to the regulator by means of policy directions, instead of after-the-fact political appeals from regulatory decisions
- establishing mandatory five-year reviews to ensure that Canada's telecommunications policy and regulatory framework remains current.

Canada's performance in telecommunications policy research and development is not as strong as that of leading OECD countries. The government is justifiably proud of the policies it has developed to "connect Canadians" through broadband and other advanced telecommunications networks. However, these policies stand out as exceptions. In other areas, particularly those related to regulatory policy, the Canadian government and its agencies have produced fewer and less forward-looking policy documents and related research than their counterparts in the United States, the United Kingdom and other major European and Asian OECD member countries.

Development of regulatory policy plays an important role in a market-based economy such as Canada's. To achieve "smart deregulation" of Canadian telecommunications markets[2] with respect to economic, technical and social issues, regulators need a policy framework that provides incentives for markets to innovate and respond to consumer and business demands for advanced ICT of all kinds.

The Panel's report is the first substantial review of Canada's telecommunications regulatory policies in a decade; the 1995 and 1997 reports of the Information Highway Advisory Council (IHAC) contained a few recommendations on regulatory issues in addition to the many other issues IHAC addressed.[3] No comprehensive review of Canadian telecommunications regulation preceded the *Telecommunications Act* in 1993. Although that Act did include a policy direction power and a few new provisions to address the transition to a more competitive market structure, it was largely based on previous telecommunications legislation, dating back to the early 20th century. The last comprehensive reviews of the main elements of Canadian telecommunications policy and regulation were undertaken in the 1970s, following the creation of the Department of Communications.

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[2] For deregulation to be "smart," it must balance the need to deregulate a market soon enough that it encourages innovation and productivity against the need to ensure that deregulation does not occur while a competitor still possesses significant market power that can stifle competition as well as the innovation and productivity that accompanies it.

[3] See Industry Canada, Information Highway Advisory Council, *Connection, Community, Content: The Challenge of the Information Highway* (Ottawa: Supply and Services Canada, 1995); and Industry Canada, Information Highway Advisory Council, *Preparing Canada for a Digital World: Final Report of the Information Highway Advisory Council* (Ottawa: Industry Canada, 1997).

The 1993 *Telecommunications Act* empowered the federal Cabinet to provide policy directions to the CRTC. However, despite the significant changes in the telecommunications environment in the past decade, the government has never issued any such policy directions. In practice, the CRTC has developed the policies that underlie Canada's telecommunications regulatory framework through its regulatory proceedings and decisions. Some submissions to the Panel suggested that the CRTC had usurped the policy-making role of government. However, others suggested that the Commission had no choice but to act as it did, given the vague and conflicting policy objectives of s. 7 of the *Telecommunications Act* and the lack of government policy making.

The Panel believes the new statutory objectives recommended in Chapter 2 will clarify Canada's telecommunications policy framework. However, the Panel also believes the policy development mandate and capabilities of the federal government should be strengthened, so it is able to respond effectively to policy issues that arise in the more competitive, dynamic and less regulated environment that will increasingly characterize telecommunications and ICT markets. Specifically, the Panel believes institutional reforms are necessary to improve:

- the government's policy development mandate
- Canada's policy research capabilities
- data collection and reporting
- reviews of the telecommunications policy and regulatory framework.

These issues are discussed in the following sections.

### The Policy Development Mandate

The Panel concludes that there should be a clearer separation of policy-making and regulatory functions at the federal level. To achieve this separation, it is necessary to transfer functions between institutions. In Chapter 5, Technical Regulation, the Panel recommends that the function of spectrum policy making should be separated from the functions of regulating, licensing and managing spectrum, and that the latter functions should be transferred from Industry Canada to the CRTC. In that chapter, the Panel also recommends that Industry Canada's other technical regulation functions for equipment and devices should be transferred to the Commission.

This recommended separation is consistent with the practice of most western OECD member countries. It is also consistent with the recommendations of a 2002 OECD report[4] on regulatory reform in the Canadian telecommunications sector, which states:

> The powers of Industry Canada are a mixture of policy and regulation. It would be more efficient in the context of future streamlining of regulations to transfer the licensing of spectrum and international submarine cables to the CRTC, which has the responsibility for market entry in fixed telecommunication services and the responsibility for regulating market entrants in all the telecommunication markets. Such a transfer of powers would also more clearly separate the policy functions from regulatory functions.

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[4] OECD, *Regulatory Reform in Canada: From Transition to New Challenges*, OECD Reviews of Regulatory Reform (OECD: 2002), p. 12. Available online at: **http://www.oecd.org/dataoecd/48/28/1960562.pdf**

The Panel's recommendations will transform the Spectrum, Information Technology and Telecommunications Sector of Industry Canada (SITT) from a mixed policy and regulatory institution into one focused primarily on developing and implementing government policy and programs.[5] In Chapter 7, ICT Policy, the Panel recommends the establishment of a national ICT adoption centre with significant new ICT policy-making and program implementation functions. While the Panel leaves it to the government to decide where to locate this new institution, it appears to be most logically located within SITT, which already has policy and program responsibilities for telecommunications, spectrum, e-commerce and other ICT applications.

These changes will transform SITT into a policy-making institution similar to those found in ministries of communications or industry in other OECD countries. This should allow it to evaluate Canadian telecommunications and ICT policies in a more objective and independent manner, independent of its own past regulatory decisions, and take into account the changing Canadian and international environment. Such evaluation should be ongoing. SITT's functions should include policy development to ensure that front-line agencies such as the CRTC and the Competition Bureau as well as the proposed Telecommunications Competition Tribunal (TCT) and Telecommunications Consumer Agency (TCA) function effectively.

Under the renewed departmental mandate proposed in this report, Industry Canada should:

- act as the lead institution in developing the legislation required to implement this report and other telecommunications and ICT-related legislation
- act as the lead institution in undertaking a continuous review of Canada's telecommunications and ICT policy
- monitor the effectiveness of telecommunications policy and regulation on an ongoing basis
- develop new policies and programs to achieve national policy objectives that cannot be achieved by market forces and regulation alone
- develop policy directions to the CRTC for approval by the Minister and Cabinet under the revised policy direction power recommended in this report
- develop and supervise a program of telecommunications and ICT policy research
- act as the lead institution to support the government in undertaking and reviewing the results of the proposed five-year reviews of Canada's telecommunications policy and regulatory framework
- advise the Minister of Industry on these and all other matters related to telecommunications and ICTs that are under the Minister's jurisdiction.

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[5] See the discussion on the transfer of spectrum regulation authority from Industry Canada to the CRTC in Chapter 5, Technical Regulation.

**Recommendation 9-1**

**The government should ensure that the *Department of Industry Act* grants the Minister and the department a clear mandate and sufficient powers to effectively lead national telecommunications as well as information and communications technology policy development.**

## Improving Policy Research Capabilities

Policy making should be an ongoing and dynamic process that responds to — and anticipates — important developments in the ICT and telecommunications sector. The Panel believes good telecommunications policy making requires good, ongoing research. The Smart Regulation report[6] notes:

> While regulation is an important tool for government action, the federal government has no policy research and development agendas in this area. The Committee believes that to support continuous improvement in the regulatory system, which is at the heart of Smart Regulation, ongoing policy research and development agendas are needed. These agendas would stimulate new thinking and innovation in the regulatory domain.

The Panel agrees with this assessment. While it was made in the context of economy-wide regulation, the Panel believes it is equally true in the area of telecommunications regulation. Modern telecommunications regulation and related competition policy are complex areas. They are becoming more complex, due to technological change and the convergence of many related ICT services and industries. Development of policies that maximize social and economic welfare of Canadians requires a good understanding of the economics and technologies of the Canadian ICT sector. Such policies should not be based on political or social policy intuition but, wherever possible, on empirical data, research and a good understanding of regulatory best practices from Canada and other jurisdictions.

As noted in the Smart Regulation report, there is in Canada a relative paucity of academic work on what has been referred to as the "regulatory craft." In Canadian telecommunications regulatory proceedings, there are relatively few research-based policy recommendations submitted by Canadian telecommunications experts, and there is heavy reliance on foreign (mostly U.S.-based) experts on economic, technical and even social regulation.

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[6] External Advisory Committee on Smart Regulation, *Smart Regulation: A Regulatory Strategy for Canada*, Report to the Government of Canada (Ottawa: EACSR, September 2004), p. 67. Available online at: **http://www.pco-bcp.gc.ca/smartreg-regint/en/08/rpt_fnl.pdf**

Leadership in telecommunications and ICT policy research and analysis is clearly related to leadership in the telecommunications field. The absence of good telecommunications and ICT policy research could cause Canada to fall behind its peers in the OECD. Industry Canada and the CRTC have largely vacated the field of policy research, except in the case of notices that are issued from time to time seeking comments on specific matters. Canadian universities that had been active in the area of telecommunications regulation, notably McGill, Toronto and Simon Fraser, have seen departures of their leaders to other areas of study, retirement or to other countries.

The Panel considers that an ongoing, enhanced telecommunications and ICT policy research capability is an essential component of well-informed and forward-looking Canadian telecommunications policy and regulation. Parliamentary review of legislation, government policy making, CRTC regulation and competition analyses in the telecommunications sector could all be improved significantly with better data and analysis of policy alternatives and the implications of different regulatory approaches for the Canadian market.

It is not clear to the Panel why there is not more or better telecommunications and ICT policy research in Canada, particularly in areas that would be useful in redesigning regulation. The problem is probably related in large part to the lack of a market for such research.

Much telecommunications and ICT policy research is undertaken in the U.S., with substantial support from private research funding. In Europe, where less private funding is available, the European Commission, government ministries, regulators and other public sector bodies provide a significant amount of such funding.

Given the relatively small size of the Canadian market, it may be best to follow the European model and provide ongoing, targeted funding for policy research relevant to significant current and future policy issues. It would be consistent with Industry Canada's enhanced policy development role for the SITT sector to establish a fund to provide research grants in areas related to key policy issues.

The research fund could operate in the manner of other research programs, with a panel of telecommunications policy makers, regulators, academics and other industry experts awarding research grants. Grants could be based on either an established research agenda tied to key Canadian policy issues, or research applications, or both. All research results should be put into the public domain in a timely manner and could be relied on by parties participating in Canadian policy-making and regulatory proceedings.

The Panel is not certain what is the best means of improving Canada's telecommunications and ICT policy research capacity, but it is clear on one thing. More and better policy research and analysis need to be done in order to keep Canadian telecommunications and ICT policy and regulation at the forefront of ICT developments.

While research funding is important to policy making, government commitment to research on an ongoing basis is equally important in the Panel's view. Some research can be conducted on an independent basis but, in an area as complex as telecommunications, the Panel believes it generally should be anchored in well-established centres dedicated to producing solid research. It takes time and start-up funds to develop centres of expertise in telecommunications. This cannot easily be accomplished without some assurance of relatively stable, multi-year funding.

The Panel makes the following recommendation to further this objective.[7] Consistent with its overall approach in this report, the Panel believes the issue of research funding should be reviewed after five years.

**Recommendation 9-2**

**Industry Canada should make a multi-year commitment to fund ongoing policy research to support improved policy making and regulation in the telecommunications and information and communications technology sectors. Research grants should be awarded by a qualified, independent panel, and the research results should be made publicly available in a timely manner.**

## Data Collection and Reporting

In addition to research, good telecommunications policy making and regulation require good data. The Panel believes good data can improve the quality of research and thus produce added benefits for the policy-making process.

In rapidly changing markets, data that support decision making should be provided in a timely manner. Such data should be collected not only on the state of telecommunications and ICT markets but also, where feasible, on the costs, benefits and hence the effectiveness of regulatory measures.[8]

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[7] The establishment of a telecommunications and ICT policy research fund, with grants to outside researchers is consistent with two recommendations of the *Smart Regulation* report (p. 69):

> Recommendation 40: The government must develop and implement a comprehensive learning strategy for the regulatory community.
>
> Recommendation 41: The government should develop and implement regulatory policy research and development agendas in collaboration with appropriate partners from outside the public service.

[8] The Panel's approach is consistent with that of the *Smart Regulation* report, which states (p. 69):

> The Committee . . . feels that government needs to improve its ability to collect and disseminate regulatory data and to analyze and use this kind of information. That is how it will continuously learn and improve its practices.

Until recently, neither the CRTC nor Industry Canada closely monitored the development of competition in Canadian telecommunications markets. In June 2000, the Cabinet directed the CRTC[9] to develop an annual report on the status of competition in Canadian telecommunications markets and on the deployment and accessibility of advanced telecommunications infrastructure and services in urban and rural areas in all regions of Canada. The direction was intended to last for five years. The CRTC has now submitted its fifth report[10] and has recently indicated that it intends to continue collecting data and publishing annual monitoring reports to the telecommunications industry.[11]

The Panel believes the CRTC should continue its annual reporting to the government for at least another five-year period. The CRTC reports provide a valuable source of data on the telecommunications sector in Canada and a good source of research information. Continued development of such reports will inform telecommunications policy making and regulation. The reports also complement the policy research program that the Panel recommends in the previous section. In addition, the reports provide useful information for telecommunications service providers, equipment manufacturers, market analysts, new entrants and others.

There has been criticism of some aspects of the CRTC's monitoring reports, in particular, the timeliness of the data and their utility for regulatory decision making in the very dynamic local access markets. The Panel notes that the CRTC has recently revised some of its data collection requirements[12] and has taken steps to improve the timeliness of the release of data that it collects.[13] However, the Panel believes policy makers, the CRTC and the telecommunications sector could continue to benefit from the collection and publication on a regular basis of additional aggregated data relevant to the sector.

Data collection can be improved in a number of ways:

- It can be refined to focus more specifically on data that support efforts to improve research capabilities in Canada, consistent with Recommendation 9-2.
- It can be better coordinated with Statistics Canada (and with the TCT if the Panel's recommendations in Chapter 4 are adopted) to minimize duplication and to maximize its utility for regulatory purposes.

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[9] By Order-in-Council PC 2000-1053, June 26, 2000.

[10] CRTC, *Report to the Governor in Council: Status of Competition in Canadian Telecommunications Markets: Deployment/Accessibility of Advanced Telecommunications Infrastructure and Services* (Ottawa: CRTC, October 31, 2005). Available online at: **http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2005/gic2005.pdf**

[11] *Monitoring the Canadian telecommunications industry*, Telecom Public Notice CRTC 2005-15, October 18, 2005.

[12] *Telecommunications industry data collection: updating of CRTC registration lists, telecommunications fees, Canadian revenue-based contribution regime, international licences and monitoring of the Canadian telecommunications industry*, Telecom Circular CRTC 2005-4, February 9, 2005.

[13] In *Release of certain local market data*, Telecom Public Notice CRTC 2005-11, August 30, 2005, the CRTC released some local market data that would appear in its fifth report to the Governor-in-Council, two months before it actually issued that report.

- It can be released on a more timely basis, for example, by establishing grids of the most useful data, that can be updated quarterly and published upon collection, on the CRTC's website, without the delay that is currently entailed in waiting for accompanying CRTC analysis and associated translation requirements.

With Industry Canada assuming an enhanced role in telecommunications and ICT policy making, it must also be actively engaged in defining the current and future data requirements to support research. The Panel therefore recommends that the CRTC, Industry Canada and Statistics Canada should form a working group to determine what these future data needs are and which institution should collect the information.

In addition, the CRTC should be directed to consult with stakeholders to determine whether additional types of industry data should be collected from telecommunications service providers, whether and how its timeliness could be improved, the frequency with which it should be collected and published, and the levels of aggregation required to assure confidentiality of sensitive competitive information.

**Recommendation 9-3**

**Telecommunications data collection and reporting should be improved in the following manner:**

**(a) The CRTC should continue, for at least five more years, to publish annual reports on the status of competition in Canadian telecommunications markets and on the deployment and accessibility of advanced telecommunications infrastructure.**

**(b) The CRTC, Industry Canada and Statistics Canada should form a working group to determine requirements for additional data to support improved regulation, research and policy making, and to determine which institution should collect the information.**

**(c) The CRTC should conduct a public consultation to determine if additional data should be collected from telecommunications service providers and how best to make industry data available in a timely manner.**

### Periodic Review of the Telecommunications Policy and Regulatory Framework

Submissions filed with the Panel provided broad support for mandatory and comprehensive reviews of Canada's telecommunications policy and regulatory framework on a regular basis. Telecommunications markets are evolving rapidly and the pace of change is expected to accelerate. In such a dynamic sector, the Panel believes policy makers should review the policy and regulatory framework frequently, terminate or change outdated policies and regulatory approaches, and ensure that Canada remains at the forefront of international best practices.

Periodic legislative and policy reviews exist in other sectors of the economy such as transportation.[14] They have also been recommended and agreed to by the Canadian government for the telecommunications sector. In its April 28, 2003, report *Opening Canadian Communications to the World,* the House of Commons Standing Committee on Industry, Science and Technology recommended that the Government of Canada amend the *Telecommunications Act* to require a mandatory five-year review of the Act by a parliamentary committee. In response, the Minister of Industry made the following commitment[15]:

> The Government of Canada welcomes your recommendation for regular parliamentary review of the *Telecommunications Act.* The years since the current legislation came into force have been marked by an accelerating pace of technological change, in the creation of new market opportunities, and in the everyday use by Canadians of services barely even imaginable a decade ago. Clearly the framework legislation for this innovative sector must be kept up to date. At the earliest opportunity, we will introduce an amendment to the legislation requiring its review every five years.

The Panel supports the proposal for a legislated ongoing five-year review process. However, it believes this should be a comprehensive review of the telecommunications sector and not limited solely to specific legislation. As such, the Panel believes a review by sector experts would be more appropriate than a review by a parliamentary committee. A comprehensive expert review should examine not only the legislation, but also the overall telecommunications regulatory framework as well as its impact on the telecommunications sector.

Such an expert review would be particularly appropriate at the end of the first five years, when it is anticipated that there could be more competition and deregulation of telecommunications markets. This review will require expert analysis of the state of telecommunications markets at that time, including detailed economic analysis and assessments of the increasingly dynamic technological environment. After completion of the review, any resulting legislative changes should be tabled in Parliament and reviewed by a parliamentary committee in the normal manner.

**Recommendation 9-4**

**The Minister of Industry should be mandated by legislation to undertake a comprehensive review of telecommunications policy and regulation every five years.**

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[14] See, for example, the *Canada Transportation Act,* S.C. 1996, c. 10, s. 53. Note that the Panel considers a broader review of the telecommunications regulatory framework more appropriate than a review of the relevant legislation alone.

[15] Letter from Minister of Industry to Chair of the Standing Committee on Industry, Science and Technology, September 25, 2003.

## The Relationship between Government and the CRTC

It is the proper role of government to establish policies and that of regulators to implement the policies and to develop the more detailed rules necessary to provide certainty as to how the policies will be applied. Comments submitted to the Panel during this review expressed broad support for the principle that the government should develop policies in the telecommunications sector. Parties also supported the principle that regulators should implement those policies in an independent, professional and transparent manner.

A number of submissions to the Panel noted that the current policy objectives set out in the *Telecommunications Act* contain conflicting and, in some cases, outdated provisions that provide little real guidance to the regulator in the discharge of its obligations. The Panel agrees that, as Canadian telecommunications markets become increasingly competitive and dynamic, our telecommunications policy must be clarified and changed to reflect the new realities.

As discussed in Chapter 2, the Panel also considers it important to differentiate between policy goals and the means of achieving them, since significantly different means are required in a competitive market-based sector from those in a monopoly environment. Moreover, in a rapidly changing marketplace, it is important to be able to make policy changes quickly.

### Government Policy Direction and Review of Regulatory Decisions

As noted above, policy is by nature dynamic. Governments have an ongoing role in refining existing policies and developing new policies to anticipate or respond to changing conditions. This policy-making role is most commonly exercised by changing laws governing the telecommunications sector. In addition, the telecommunications legislation in a few OECD countries provides the government with a power to direct — or to communicate with — the regulator on policy matters.[16] In some countries, the legislation permits the government to review decisions taken by the regulator.[17]

Canada appears to be the only OECD country whose telecommunications legislation empowers government to do both; that is, to provide advance directions on policy matters (the "policy direction power")[18] and also to review and vary, rescind or refer a decision back to the regulator on policy grounds (the "Cabinet review power").[19] The legislative framework within which the

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[16] The power to direct is given to the government in Austria, Canada, Ireland and the Netherlands; the power to communicate is granted in Italy. See OECD, *Telecommunication Regulatory Institutional Structures and Responsibilities*, Working Party on Telecommunication and Information Services Policies, DSTI/ICCP/TISP(2005)6/FINAL (OECD: June 2005), p. 15. Available online at: **http://www.oecd.org/dataoecd/56/11/35954786.pdf**

[17] The power to review is given to the government in Belgium, Canada, Denmark, Hungary, Mexico and Norway. See *Ibid.*, p. 14, Table 5.

[18] See *Telecommunications Act:*

> 8. The Governor in Council may, by order, issue to the Commission directions of general application on broad policy matters with respect to the Canadian telecommunications policy objectives.

[19] See *Telecommunications Act:*

> 12.(1) Within one year after a decision by the Commission, the Governor in Council may, on petition in writing presented to the Governor in Council within ninety days after the decision, or on the Governor in Council's own motion, by order, vary or rescind the decision or refer it back to the Commission for reconsideration of all or a portion of it.

CRTC operates therefore makes it appear to be one of the least independent telecommunications regulatory agencies in any OECD country. The government power to intervene in the regulatory process both before and after decisions have been taken has the potential to be detrimental to the integrity of the regulatory process. The Panel notes that this double-barrelled process has also led to negative comments in OECD reports[20] and other international fora.

In practice, however, the Commission has been allowed to act with relative independence. The policy direction power has never been used by the government since it was introduced in 1993, when the *Telecommunications Act* was proclaimed into force. The Cabinet review power has been used on a number of occasions. It is frequently called for by parties who are dissatisfied with CRTC decisions. However, the government has seldom granted such requests, and the Cabinet review power has never been used by the government on its own initiative.[21]

### Improving the Policy Direction Power

The Panel does not consider the current approach to be the best one for government policy making. Unlike policy directions, which are forward looking in nature, the Cabinet review power is used after-the-fact, to change the results of a public regulatory process that has been completed. Since regulatory battles are primarily waged between private sector competitors, any Cabinet review can be viewed as a choice between competing commercial interests, rather than between competing policy alternatives. Although the *Telecommunications Act* establishes some procedural safeguards, these have not dispelled the impression that Cabinet reviews are determined based on behind-the-scenes lobbying campaigns to overturn decisions that were reached in a more transparent regulatory process. The fact that the Cabinet review power has not been used more frequently to date does not necessarily mean that this will be the case in the future.

On the other hand, concerns have been expressed about the fact that the policy direction power has not been used. Some submissions to the Panel expressed the view that the failure to use this power had created a policy vacuum. It has been suggested that this has left the regulator with too little policy guidance and no choice but to make its own policy within the general and conflicting policy objectives of s. 7 of the *Telecommunications Act*.

In previous sections of this chapter, the Panel has recommended measures to improve the policy research and policy-making capacities of the government. It has also suggested that the SITT sector of Industry Canada should play an ongoing role in monitoring the effectiveness of telecommunications policy and regulation. The Panel regards the policy direction power as a useful component of the policy maker's tool kit — one that becomes more important with SITT's enhanced policy-making role.

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[20] See OECD, *Regulatory Reform in Canada*, p. 13.

[21] The Consolidated Index of Statutory Instruments (May 5, 2005) indicates that since 1981, there have been 12 Cabinet reviews in which a CRTC telecommunications order was varied and one in which it was referred back to the CRTC. However, of that total, only two variances and the one reference back were made since the *Telecommunications Act* came into force.

The Panel's recommendations envisage a more active and dynamic role for the government in giving policy direction to the regulator. This may occur as part of the government response to this report. It may also occur in the future as the telecommunications sector evolves in ways that cannot be foreseen at present. The Panel concludes that the policy direction power should be maintained. However, the Panel believes procedural changes should be made to improve the quality of policy directions and the transparency of the process by which they are developed.

The *Telecommunications Act* sets out the procedure for making an order under the policy direction power. The procedure involves laying the proposal before both Houses of Parliament. There is no requirement to consult interested stakeholders such as consumers and service providers on proposed policy changes before they are laid before Parliament. The Panel believes such a consultation process can substantially improve the quality of resulting policy directions and the transparency of the policy-making process.

Therefore, the Panel believes that, before issuing a telecommunications policy direction to the CRTC, the Minister of Industry should issue a public notice containing the proposed policy direction. The notice should also provide the rationale for the policy and any relevant background or other information. Stakeholders and the general public should be given a reasonable opportunity to comment on the policy before it is finalized. With this reform, the development of policy directions will be viewed as a more orderly process — rather than as some *deus ex machina* development — that welcomes, rather than excludes, participation from those who will be most affected by its implementation.

The Panel considers that once Parliament has established the overall statutory policy framework in the *Telecommunications Act*, evolving policy making within that context is more properly the function of government. Accordingly, the Panel believes its proposed process for direct consultation with stakeholders should replace the current requirement to refer proposed policy directions to parliamentary committees for their review.[22] Implementing this recommendation should, as a practical matter, expedite and lend greater certainty to the policy direction power. Directions will no longer be automatically subject to after-the-fact review by committees. However, before-the-fact reviews of proposed policy directions by stakeholders affected by them are more in keeping with modern regulatory practice. They are also fairer to stakeholders; that is, those who are actually affected by the direction.

As a related procedural matter, the Panel believes the phrase "interested persons," as used in a number of sections in the *Telecommunications Act*, should be broadened to "any person," since the former phrase suggests there is a standard that must be met in order to participate in the process.[23]

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[22] Under ss. 10.(4) of the *Telecommunications Act*, a proposed order "stands referred to such committee as is designated by order of that House to receive such orders."

[23] This change was recommended by ARCH, "A Legal Resource Centre for Persons with Disabilities," Submission to the Panel, August 15, 2005, p. 31.

These recommendations and the related enhancements to the policy-making and policy research capabilities weaken the argument for providing the government with both *ex ante* direction and *ex post* review powers with respect to CRTC decision making. As discussed earlier in this section, the Panel believes the combination of the policy direction power with the Cabinet review power has the potential to undermine the integrity of the CRTC's independent regulatory process. The lack of transparency of the Cabinet review process also runs counter to the admonition in the *Smart Regulation* report that regulatory decision-making processes should, with confidence, be said to have been shaped in a fair and neutral manner.[24]

Although the Cabinet review power has been exercised relatively infrequently since 1993, there have been frequent petitions to use it by parties who were dissatisfied with CRTC decisions. Each time a petition to review a CRTC decision is filed, it imposes significant costs on other stakeholders and the Government of Canada in terms of the resources required to respond to the petition. It also creates an extended period of uncertainty on the industry and other stakeholders, since the government may take up to one year to make its decision on the petition. Finally, consumer groups and other less well-funded parties are at a distinct disadvantage, in comparison to large commercial interests, in their ability to participate in the process. This creates an appearance of unfairness. For all these reasons, the Panel considers that it is not necessary to retain the Cabinet review power.

**Recommendation 9-5**

**The policy direction power should be transferred into a more effective policy-making instrument by**

**(a) requiring the government to issue a public notice containing a proposed direction and the reasons for it and giving the public a reasonable opportunity to comment on it,**

**(b) repealing the current requirement to refer a proposed policy direction to parliamentary committees for review, and**

**(c) repealing the Cabinet power to review individual CRTC telecommunications decisions.**

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[24] EACSR, *Smart Regulation*, p. 131.

## Reforming the CRTC

The recommendations of this report envision a more deregulated telecommunications industry, with more streamlined and targeted regulatory interventions in those areas where regulation remains necessary. Chapter 2 recommends more focused regulatory objectives — and recommendations elsewhere in the report suggest less intrusive and more targeted means of achieving those objectives. These new means place much more reliance on market forces, in combination with a more focused approach to achieving key economic, technical and social objectives of regulation.

Based on the recommendations in this report, the new telecommunications mandate of the CRTC will be significantly different from that exercised under current legislation. Under its new mandate, the CRTC will be less directly involved in dealing with complaints of anti-competitive conduct and related telecommunications market analysis. These areas will be addressed by the new TCT. Similarly, the CRTC will be less directly involved in dealing with consumer issues and complaints, which will be handled by the new Telecommunications Consumer Agency (TCA).

The CRTC will continue to deal with an increasingly complex range of issues related to interconnection and unbundling of essential facilities. It will add to these responsibilities, new issues of consumer access to multi-layered telecommunications platforms. The CRTC's telecommunications regulatory mandate will be enlarged in other ways that require additional technical expertise. In particular, the Commission will become responsible for authorization and regulation of the use of the radio spectrum and telecommunications equipment, taking over these functions from the SITT sector of Industry Canada.

While some forms of detailed CRTC economic regulation will be significantly reduced by the move away from *ex ante* regulation, the Commission will require an enhanced professional capacity to determine when regulatory intervention is required and to be able to act quickly and knowledgeably. An example is the move from *a priori* approval toward a negative disallowance regime for tariff filings. Rather than having weeks or months to review tariff filings, the Commission will have to decide within seven days whether to disallow or suspend a tariff or to allow it to go into effect.

The Commission will also need to enhance its capacity to deal with the accelerating convergence of the telecommunications, Internet and broadcasting industries. This convergence will demand more sophisticated forms of economic, technical and legal analysis, to enable the Commission to determine in a timely and effective manner when and how to regulate — and when to move out of the way of market forces.

The Panel's vision is to see Canada become a global leader in telecommunications regulatory practice — developing and adapting international best practices to support the development of world leading communications markets. Currently, the CRTC does not appear to have the level of expertise of the regulators in important comparator markets, such as the U.S. and the U.K., to develop and implement innovative regulatory practices in the areas of economic, technical or social regulation.

It is a truism that good regulation requires good human resources. The *Smart Regulation* report succinctly made this point by saying[25]:

> As in any knowledge enterprise, human resources are the most important asset. The regulatory system is no different.

Effective and efficient regulation also requires a streamlined organizational and decision-making structure — and efficient regulatory practices. Subsequent sections of this chapter deal with the CRTC's powers, responsibilities, practices and procedures.

In this section, the report deals with the size and composition of the CRTC and its staff. The main recommendations on these issues are:

- reduce the size of the CRTC from 13 members to five (at least for telecommunications regulatory purposes)
- improve the recruiting practices for commissioners to attract the best qualified and most knowledgeable candidates for these five positions
- increase the flexibility of the government to pay market-scale compensation for the best-qualified candidates for commissioner positions and for a limited number of key professional staff in positions where special skills are required
- permit the CRTC to retain well-qualified individual experts or firms on consulting contracts, where specialized capabilities are required.

### Number of Telecommunications Commissioners

Under current legislation, 13 full-time members and six part-time members can be appointed to the CRTC. Full-time commissioners may participate in both telecommunications and broadcasting matters. Part-time members may deal with broadcasting matters only.[26]

This number is exceptionally large compared with other OECD countries — or any other country in the world — even taking into account the fact that commissioners also have responsibility for broadcasting matters.[27] For example, the U.S. FCC has only five members, even though its responsibilities are broader than those of the CRTC today. The FCC's mandate includes spectrum management in addition to telecommunications and broadcasting regulation. An OECD report released in October 2005 indicates that Canada has the largest number of members on its regulatory body of the 30 OECD countries. No other federal telecommunications regulator had more than nine members, and most had one to five.[28]

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[25] *Ibid.*, p. 66.

[26] *CRTC Act*, ss. 3.(1) and 12.(2), respectively.

[27] The exceptionally large size of the CRTC compared with other regulatory agencies was commented on in OECD, *Regulatory Reform in Canada*, p. 12. One wry observer noted that such a large CRTC appears more like a "Parliament" than an expert regulatory institution that is required to make decisions based on the application of competition policy and economic principles.

The large number of CRTC commissioners can complicate and delay the decision-making process and lead to lowest-common-denominator consensus decisions. Procedurally, it is more difficult to arrange meetings for a large number of commissioners. Substantively, it can be more time consuming to reach consensus, and more trade-offs may be required.

Consistent with its proposals for streamlining regulation and appointing commissioners with more expertise in new regulatory approaches (discussed in the next section of this chapter), the Panel concludes that there should be a smaller number of commissioners.

The Panel recommends that the number of commissioners should be reduced to five full-time members.[29] The five commissioners should deal with both telecommunications and broadcasting regulatory matters. If the government concludes that a greater number of commissioners is needed to regulate broadcasting, the Panel recommends that these additional commissioners should not deal with telecommunications. This would preserve a smaller and more effective decision-making group for telecommunications regulation.

However, the Panel notes that, based on the experience of the U.S. and other countries, it does not seem necessary to have more than five commissioners, even for broadcasting purposes.

The Panel believes five commissioners will constitute a large enough organization to carry out the new functions contemplated in this report. With the transfer of a number of competition policy issues to the new TCT, a CRTC appointment should not be too demanding on any one member. Careful selection of the five members should also permit a reasonable linguistic and regional mix.[30] In addition, a total complement of five commissioners should be capable of addressing all telecommunications matters in various panels without impairing the CRTC's ability to conduct review applications of telecommunications decisions when required.[31]

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[28] See OECD, *Telecommunication Regulatory Institutional Structures and Responsibilities*, p. 10, Table 4.

[29] This may have to be phased in through attrition.

[30] While it is a Canadian custom, the Panel is not persuaded that there is a real need to appoint a regional mix of commissioners to achieve the objective of effective regulation. The principles of economic, technical and social regulation of telecommunications companies do not vary greatly from region to region and, to the extent they should vary in their application, commissioners can be made aware of the relevant regional differences. There is perhaps a greater risk that regional commissioners may view themselves as advocates for regional constituents such as locally based telecommunications companies or other local interests and represent such interests against those of others.

[31] The Panel notes that in the local forbearance hearings conducted in 2005, all 11 full-time commissioners sat on the hearing panel. When the CRTC conducts review applications under s. 62 of the Act, it attempts, as far as possible, to have commissioners who did not participate in the original decision sit on the review panel.

**Recommendation 9-6**

**The *Canadian Radio-television and Telecommunications Commission Act* should be amended to reduce the number of CRTC commissioners from 13 to 5. The five commissioners should deal with both telecommunications and broadcasting matters. Any additional commissioners who might be appointed for broadcasting regulation purposes should not deal with telecommunications matters.**

### The Selection Process for CRTC Commissioners

Effective implementation of the new regulatory approaches proposed in this report will present significant challenges to CRTC commissioners. Their task will be complicated by technological and market developments in an increasingly dynamic and converging environment. It will require commissioners with a good understanding of the issues related to economic, technical and social regulation, and with rigorous analytical skills.

Telecommunications has become such an important enabler for Canada's economic and social development that Canada cannot afford to have the regulator "get it wrong." The Commission will require the best and most experienced minds to "get it right." This will require individuals with particular skill sets and professional qualifications who are highly valued in the marketplace.

If the government accepts the recommendations contained in this report, the CRTC's new mandate will be more technically and economically oriented and less focused on general social policies — although commissioners will need a good understanding of how best to achieve essential social goals in the new market environment. The task of implementing the Panel's recommendations will require commissioners to have a thorough knowledge and understanding of: the economic and legal underpinnings of competition policy and its application to a less regulated environment, wholesale access matters, technically challenging issues relating to interconnection, the interaction between Internet applications and telecommunications networks, and the complex area of spectrum management.

At present, there are no formal qualifications required for appointment as a CRTC telecommunications commissioner.[32] Nor, to the best of the Panel's knowledge, has the government established any formal recruitment procedures. Insiders have described the process of appointing commissioners as "highly political." While there have been some excellent appointments, the Panel is concerned that the current selection process may not place sufficient emphasis on the experience, knowledge and analytical skills required to successfully implement the new regulatory framework. Accordingly, the Panel believes the government should adopt a more open and professional approach to recruiting commissioners, similar to that used by universities, other public institutions and private corporations to recruit senior executives.

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[32] The *CRTC Act*, ss. 5.(1) simply disqualifies persons who have conflicting financial interests that would clearly interfere with their impartiality. However, there are no affirmative qualifications contained in the Act.

This approach should apply to all commissioners involved in telecommunications regulation. It should be based on a written statement of the qualifications required for appointment as a commissioner. These should include superior capabilities in one or more of the key professional disciplines required for economic regulation of a sector like telecommunications, such as economics, business administration, law or expertise in telecommunications technology. The qualifications should also include a demonstrated capacity to learn and to rigorously apply the economic, legal and technical approaches used in the regulation of competitive telecommunications and ICT markets.

The Panel is concerned that the current selection process may fail to identify qualified candidates who would be available and interested in a commissioner position. Therefore, a professional recruitment organization from inside or outside the public service should be retained to assist with the selection process. The recruitment specialists should assist in advertising for, identifying and screening qualified candidates. A short list could then be prepared by the recruitment specialists, to be presented to the government for its final selection.

The Panel does not consider it necessary to amend the legislation to specify the recruitment process, although this could certainly be done. At a minimum, the government should publish a policy statement adopting the new CRTC commissioner selection process.

**Recommendation 9-7**

**The government should adopt an open, professional recruitment process for CRTC commissioners who are responsible for telecommunications regulation.**

The Panel also wishes to address the issue of reappointment of commissioners. The current process provides for fixed-term appointments that may be renewed for additional terms. However, there is no requirement that the government advise incumbent commissioners in advance whether or not they will be reappointed. This can lead to considerable uncertainty within the CRTC. In a number of cases, commissioners have not known whether they would be reappointed until the last few days of their term. Therefore, commissioners who might wish to be reappointed do not know whether or not to seek other employment opportunities. It is difficult for the CRTC's chairperson to assign those individuals to any proceeding that may extend beyond their current term. This has the effect of making them lame ducks for the last part of their tenure at the Commission. It may also affect their decision to seek other positions or to seek reappointment.

This is an inefficiency that can easily be remedied by amending the *CRTC Act* to require commissioners to be notified at least six months before their terms expire whether or not they will be reappointed and, if so, for what length of term. Any affirmative notification can include a reasonable amount of time for the affected commissioner to indicate whether or not the new conditions are acceptable.

**Recommendation 9-8**

**The *Canadian Radio-television and Telecommunications Commission Act* should be amended to include a requirement to advise incumbent commissioners, no later than six months prior to the end of their appointed term, on whether or not they will be reappointed and, if so, the length of their new term.**

### Compensation Levels

During the course of its review, the Panel frequently heard of the difficulty in attracting and retaining highly qualified commissioners and CRTC staff with specialized telecommunications expertise, since such individuals have the option of earning significantly higher compensation working in the private sector.

The salaries of the full-time commissioners are set by Order-in-Council. Commissioners are also entitled to federal public service pension benefits.[33] The current salaries and pensions are certainly reasonable by public service compensation standards. However, they are well below the levels paid to senior executives and some middle managers in telecommunications companies, and to top professional regulatory practitioners such as lawyers and consultants. The Panel is concerned that the current salary levels are insufficient to attract and retain the highly qualified candidates who are capable of meeting the increased demands that will be placed on the Commission to implement the new regulatory approaches proposed in this report.

The same problem exists at the level of the Commission staff. As with many expert tribunals, the Commission staff is responsible for most of the research, analysis and decision writing of the Commission, among their other responsibilities. The Panel considers that it would be necessary to attract, recruit, train and retain a number of highly experienced telecom experts among the staff to successfully implement the new regulatory framework proposed in this report.

The proposed new regulatory framework calls for quicker decision making and entails more challenging professional analyses of issues involving interconnection, economic, technical and spectrum regulation, among others. In addition, the Commission staff who are assigned to support proceedings of the new TCT will require in-depth knowledge, not only of the telecommunications industry, but also of competition law and policy.

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[33] *CRTC Act*, ss. 7.(1) and 9.(1), respectively.

Members of the Panel who visited Ofcom, the new telecommunications regulator in the U.K., were impressed with the level of professional sophistication, youth, energy and dedication of the staff of that institution. They were told that it had been possible to attract top-quality professional staff because Ofcom was able to offer them compensation at market rates for consultants that were considerably above the normal U.K. public service salary scales. Ofcom executive compensation plans also include performance-based compensation.[34] Precedents for market-based compensation schemes also exist in Canada, in the case of Special Operating Agencies.[35]

The Panel recommends that, in selected cases, more flexible and market-oriented compensation levels should be made available to attract top candidates for commissioner and expert senior staff positions. The Panel notes that its recommendations include a significant reduction in the number of commissioners. Accordingly, higher levels of compensation could be paid to commissioners without increasing overall budget levels. In the case of expert staff, the Panel considers that more market-oriented compensation levels would be required to retain a small number of experts to perform tasks that require specialized expertise and abilities related to telecommunications regulation.

> **Recommendation 9-9**
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> **There should be increased flexibility to set compensation levels for commissioners and a small number of expert staff positions at market levels, including the potential for performance-based incentives, to permit the CRTC to attract and retain highly qualified individuals to meet the professional requirements of the proposed new regulatory framework.**

Even if it is able to attract more highly qualified staff experts, it is likely that the CRTC from time to time will require specialized professional expertise not available in-house. In addition, heavy workload periods may make it impossible for the Commission to process applications or other proceedings in a timely manner, without the assistance of outside resources.

Many government, business and non-government organizations fill demand for specialized expertise and excessive workload by retaining individual consultants or firms. Other telecommunications regulatory agencies, such as Ofcom, do the same. Timely recourse to outside consulting expertise would greatly assist the CRTC in meeting the demanding requirements of the proposed new regulatory framework. The inability to retain such outside expertise may make it impossible for the CRTC to do so.

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[34] Some executive compensation arrangements include the potential for performance-based bonuses of up to 20 percent of salary levels.

[35] See, for example, the Office of the Superintendent of Financial Institutions.

It is apparently possible, in principle, for the CRTC to retain outside consultants under its current public service arrangements. However, experience has shown[36] that these requirements are excessively bureaucratic and time-consuming and that they make it very difficult to retain sufficient expertise at market-oriented rates. The Panel considers that the *CRTC Act* should be amended to grant the Commission clear authority and sufficient budget to retain outside expert consultants at market rates. This authority should extend to cases where such experts are required to provide specialized advice or other assistance, or to meet heavy workload requirements in a timely manner. It could be modeled on similar authority granted to the Competition Bureau.[37]

**Recommendation 9-10**

**The CRTC should be granted clear authority and sufficient budget to retain outside expert consultants at market rates when they are required to provide specialized expertise or to meet heavy workload requirements.**

## Improving the Regulatory Process

The preceding sections of this chapter focus on proposed changes to Canada's telecommunications policy-making process, the relationship between government and the CRTC, and the composition and staffing of the CRTC. In addition to its recommendations in those areas, the Panel believes improvements should be made to the regulatory process itself.

Canada can be justly proud of having a generally open and transparent regulatory process in the telecommunications sector. However, the Panel believes this regulatory process can be improved through more timely delivery of regulatory services and through more efficient and effective regulatory approaches.

More timely regulation could be achieved by adopting the following approaches:

- After the record of a proceeding has closed, the time taken by the CRTC to issue its decisions should be shortened on a consistent basis. While the CRTC has recently introduced measures to reduce regulatory lag, the Panel believes performance standards should be introduced and retained on an ongoing basis.
- When the CRTC engages in regulatory rule making, it should improve the focus of its consultation process by setting out its objectives, proposed approaches or options under consideration at the commencement of the proceeding.

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[36] For example, the CRTC experienced significant and time-consuming problems when it tried to retain outside experts to assist it in completing its recent local forbearance proceeding in a timely manner. Failure to deal with local forbearance issues in a timely manner has been a major source of industry criticism of the CRTC.

[37] *Competition Act*, R.S.C. c. C-34, ss. 25–27.

- In an *ex post* regulatory regime, when violations occur, there should be timely enforcement with sufficient deterrence. To achieve this, the CRTC should be granted additional enforcement tools. The CRTC should also be able to refer matters to the Attorney General of Canada for possible prosecution of offences.
- To reduce delays associated with judicial appeals, the requirement for leave to appeal CRTC decisions should be abolished.
- Regulatory services can be delivered in a more timely manner when they are handled efficiently. The Panel anticipates that there will be an increased role for dispute resolution in the future. This can be most efficiently handled — and strains on CRTC resources reduced — if disputes that do not have any policy implications can be outsourced to the private sector.

In addition, more efficient and effective regulation could be achieved through the following approaches:

- The current tariff approval process should be streamlined, with the onus placed where it properly belongs, by replacing the various CRTC-prescribed documents required to be filed by carriers to justify tariff applications with simple statements of regulatory compliance by them.
- The CRTC regulatory "jurisprudence," which consists of myriad decisions, orders, tariffs, letter decision, public notices, regulations and other documents is more complex and opaque than desirable. It can be made more transparent through development of a single "regulatory code" that over time could incorporate and update all applicable regulatory rules in the telecommunications sector.
- Some authorizations currently required to provide telecommunications services in Canada no longer serve a useful purpose and should be repealed.
- The *CRTC Telecommunications Rules of Procedure* (the Rules) do not reflect current practices and procedures. The CRTC should conduct a thorough review of its Rules of Procedure, with a view to streamlining, updating and consolidating them to reflect the new regulatory regime. The CRTC should also revise its current approach to the awarding of costs in its proceedings, and the government should review the issue of funding public interest groups that participate in such proceedings.

The following table summarizes the changes proposed in this section.

| **Regulatory Issue** | **Recommended Improvement** |
|---|---|
| Regulatory lag | • Require the CRTC to establish performance service standards measuring the timeliness of its decision making |
| Lack of focus and depth in regulatory rule-making proceedings | • Require the CRTC to initiate rule-making proceedings with a notice setting out the specific objectives and, whenever possible, the proposed rules or options being considered, and to provide the rationale for the proposals |
| Inadequate enforcement and deterrence mechanisms | • Grant the CRTC authority to impose administrative monetary penalties<br>• Grant the CRTC authority to refer matters to the Attorney General of Canada for possible prosecution<br>• Increase fines to levels consistent with those in the *Competition Act*<br>• Simplify and clarify the rights of civil action for damages |
| Delay and uncertainty in judicial appeals of CRTC decisions | • Repeal the requirement to obtain leave to appeal to the Federal Court of Appeal on matters of law and jurisdiction |
| Slow or inadequate dispute resolution mechanisms | • Increase CRTC reliance on alternative dispute resolution (ADR) by the Commission itself and by outside ADR mechanisms in appropriate cases |
| Delays in analysis and approval of tariffs | • Replace required documentation to justify tariff filings with documents that certify compliance with all regulatory requirements |
| Complexity and opaqueness of CRTC telecommunications rules | • Require the CRTC to establish a regulatory code over time, to provide a single, updated source of telecommunications regulatory rules |
| Unnecessary authorizations | • Replace licensing regimes for basic international telecommunications services and for international submarine cables with simple registration requirements |
| Outdated rules of procedure | • Review, streamline and update the *CRTC Telecommunications Rules of Procedure*<br>• Revise the criteria for awarding costs in telecommunications proceedings<br>• Review public interest group funding |

## Service Standards for CRTC Regulation

Regulatory lag is one of the major complaints generally cited in recent years with respect to telecommunications regulation. The CRTC from time to time has taken initiatives to reduce regulatory lag, and it has significantly reduced such lag over the past eight months. However, the Panel believes steps should be taken to ensure that the Commission continues to run a more streamlined regulatory process on an ongoing basis.

There are two major components of regulatory lag in CRTC proceedings:

- the time it takes the regulator to complete the record of relevant material in a proceeding
- the time it takes the regulator, after the proceeding has closed, to issue its decision.

With respect to the first component, the CRTC normally imposes time limits within which parties appearing before it must provide documents. These time limits are set out in the Rules. They are frequently supplemented by more detailed directions on procedure issued by the CRTC. Although this routine use of supplementary rules is a concern (which the report addresses later in this chapter), the actual time limits imposed are generally proportionate to the level of effort required to provide the required materials.

However, with respect to the second component, there is nothing in the *Telecommunications Act* nor the Rules that imposes deadlines on the CRTC to issue rulings or decisions. The Act does contain one provision (s. 26) that established a 45-day time limit for the disposition of tariff filings. In practice, this time limit has not always been effective because it includes an exception (para. 26.(c) whereby the CRTC can publish written reasons for a delay), which has been relied upon fairly frequently.

The result has often been an open-ended process, in which parties have had no guidance on when a decision would be issued or on what priority it might have within the CRTC. The CRTC's problems with regulatory lag have often been exacerbated by the complexity of the issues it has faced and the lack of adequate Commission resources available to deal with them — matters that are addressed elsewhere in this report. The Panel also notes that the Commission has recently begun to indicate the anticipated decision date in some proceedings[38] and has introduced performance service standards for the disposition of retail service tariff applications, which are discussed below.

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[38] See, for example, *Forbearance from regulation of local exchange services*, Telecom Public Notice CRTC 2005-2, April 28, 2005, and *Framework for forbearance from regulation of high-speed intra-exchange digital services*, Telecom Public Notice CRTC 2005-8, June 30, 2005. In both cases, the CRTC stated that "a decision will be issued within 150 days after the record closes." However, the Panel observes that in the more recent *Bell Digital Voice Service*, Telecom Public Notice CRTC 2005-9, July 7, 2005, the statement had been softened to "The Commission expects to issue a decision within 90 days after the record closes."

### Applying Service Standards to the CRTC Process

The Panel believes there are some opportunities to reduce the time that it takes to complete the record in CRTC proceedings, without sacrificing the quality of the evidentiary record. As one small example, greater use should be made of mandatory electronic exchange of documents. While the CRTC has already implemented and encouraged electronic filing, it is not yet mandatory. In the Panel's view, mandatory electronic document exchange should further reduce the time that the CRTC normally builds into its process for documents to be prepared and exchanged. This would also be consistent with the Panel's recommendation that government should become a champion in the adoption and use of ICTs.

The time required to complete the record in a telecommunications proceeding may be longer than necessary, but it does have the advantage of being a matter of public record, in that parties understand when the various steps will have been completed. The same cannot be said about the time required for the CRTC to issue its decisions.

As the telecommunications sector becomes increasingly competitive and the CRTC begins to rely to a greater extent upon *ex post* regulation, open-ended decision making will become a matter of increasing concern.

*Ex post* regulation may be viewed by some as a leap of faith that does not carry with it the certainty that the *ex ante* model appears to offer. The Panel believes one of the principal underpinnings of successful *ex post* regulation is the knowledge that when regulatory intervention is required, it will be taken in a timely manner. One of the five fundamental principles in the Smart Regulation report is "timeliness," which is described in the following manner[39]:

> Principle 3 **TIMELINESS** — Regulatory decisions and government services must be provided in a manner that reflects the pace at which new knowledge develops, consumer needs evolve and business now operates. Timeframes and standards for decision making should be developed and enforced.

The pace at which new knowledge is developing in the telecommunications sector is clearly accelerating, as is the evolution of consumer needs and business operations. The delivery of regulatory services should not be allowed to lag behind. The CRTC has recently made significant efforts to become more accountable in the timeliness of its decision making. However, the Panel believes this should not be a matter that is left solely to the CRTC's discretion and to internal regulatory priorities that may change over time.

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[39] EACSR, *Smart Regulation*, p. 14.

The Panel makes a number of recommendations that should reduce both the number and type of matters that engage the CRTC decision-making process, as well as the time required to issue decisions when intervention is required. These include, for example, the introduction of the presumption of deregulation, the negative disallowance approach with respect to tariff filings, the reduced number of telecommunications commissioners and the authority to retain outside experts in certain circumstances, all of which have been discussed above in the report. In addition, as discussed below in this chapter, the Panel is recommending the repeal of unnecessary licensing regimes and greater reliance on registrations and declarations by senior officers of filing entities, in place of traditional regulatory scrutiny.

A number of federal regulatory statutes include requirements for the regulator to make certain decisions within specified times.[40] This model does offer the attraction of certainty. However, the telecommunications regulatory process involves several different types of proceedings, with different levels of complexity and different implications for the industry. Some CRTC telecommunications decisions are very lengthy and technically detailed, while others are quite short and straightforward. The requirement to provide all CRTC determinations in both official languages can add to the time required to release the lengthier decisions.

In that context, any attempt to capture an average length of time for decision making will inevitably allow too much time for some decisions and insufficient time for others; neither result is in the public interest.

The Panel notes that the CRTC has begun publishing performance service standards with respect to retail service tariff applications.[41] These standards establish "measurable indicators," such as the percentage of CRTC rulings to be issued in a specific process within a predetermined number of days. The published report compares the actual results with those goals. The Panel believes this approach should be encouraged in other areas of CRTC service delivery and that it is more conducive to improved overall timeliness than a one-size-fits-all statutory time limit.

The Panel recommends that the CRTC be directed to consult with industry stakeholders to establish performance service standards for delivery of all forms of rulings by it. Standards should be developed by defined category of proceeding, subject to the following minimum expectations:

- Time limit targets should run from the time that the record of a proceeding closes and not from the time that originating documents are received by the CRTC. This should minimize the potential for regulatory gaming by parties that appear before the CRTC.
- Time limit targets must be reasonable, so they do not compromise the CRTC's ability to issue well-reasoned and responsible decisions, but they should also require its focused deliberation.

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[40] See, for example, the *Canada Transportation Act*, S.C. 1996, c.10, s. 29 and the *Special Import Measures Act*, R.S.C. 1985, c.S-15, ss. 37.1, 38, 39, 41 and 41.1.

[41] See: **http://www.crtc.gc.ca/eng/publications/reports/t_st2005.htm**

- When time limit targets are established, the CRTC should comply with them. In the event that it does not meet a particular target during a measured period, the CRTC should state publicly what specific steps it will take to meet the target in the future.
- The CRTC should publish the results of its actual performance, measured against the established service standards on a quarterly basis and in its annual reports.

**Recommendation 9-11**

**The CRTC should establish and adhere to published performance service standards for the various forms of regulatory proceedings it runs. These standards should be developed in consultation with the telecommunications industry and the public.**

## The Rule-making Process

When the CRTC wishes to introduce a regulatory policy or to change an existing policy, it generally does so in an open manner, following a public consultation process. This rule-making process typically begins with a public notice issued by the CRTC, in which it seeks comments from the public and ends with a decision by it that is based on the record of that proceeding.

In some cases, the CRTC issues a public notice with a proposed regulatory policy or preliminary view included. On other occasions, it simply states that it is considering a matter and — with or without indicating its views on the matter — asks interested parties either to provide their views or to respond to a series of questions. There does not seem to be a consistent pattern. Several parties suggested to the Panel that the CRTC should be obliged to adopt a process similar to the notice of proposed rule making (NPRM) process used by the FCC. The FCC frequently issues an NPRM in which it sets out new or changed regulatory rules it proposes to adopt, explains the background and rationale for the proposals and seeks comments on them.

### Improving the Rule-making Process

Both the CRTC and Industry Canada have adopted the NPRM approach from time to time in recent years. The Panel endorses this approach, since it will lead to an improved regulatory process. However, this is a matter that is too fundamental to good regulatory governance to be left to a case-by-case approach. In the Panel's view, the NPRM approach should be adopted and applied consistently whenever possible, and the rationale for the proposal should be sufficiently detailed as to allow informed comment from interested parties. Consistent with the discussion in Chapter 2 regarding telecommunications policy objectives, any such rationale should make a clear distinction between the means to be adopted in the proposal and the ends that those means are intended to achieve.

There may be exceptional instances in which the CRTC has not determined its proposed course of action, possibly because it does not have sufficient underlying facts or data in its possession. In those cases, the notice initiating the process should clearly set out specific options that the CRTC is considering, together with arguments for and against each option. Where appropriate, it should also outline the additional information that it expects to gather during the process, in order to allow it to finalize the policy.

This NPRM approach will require more rigour by the CRTC at the front end of the consultation process, both in terms of thinking through a coherent position or options, and also in articulating the objectives of the proposal. However, this will give commenting parties a more specific framework to address. This improved focus should also reduce the time required for subsequent CRTC analysis of positions and the potential for participant surprise at the outcome. The reduction in time is consistent with the Panel's recommendations to reduce regulatory lag.

**Recommendation 9-12**

**When the CRTC proposes to introduce or to change a regulatory approach or rule, it should routinely publish a notice seeking comments on specific proposals or options being considered. The notice should set out the background and the supporting rationale for the proposed approach or options.**

### Enforcement of Telecommunications Regulation

The *Telecommunications Act* provides three different avenues of recourse in the event that someone breaches its provisions:

- regulatory intervention by the CRTC
- quasi-criminal prosecution
- actions for damages.

It is possible that one breach might give rise to more than one of the above remedies. However, the remedies were enacted during a period in which most telecommunications services were provided on a monopoly basis and service providers were considered more as public utilities than as competitive service providers. As such, the remedies have not kept pace with regulatory and market developments.

### Strengthening Regulatory Remedies

The *Telecommunications Act* contains limited powers for the CRTC to respond to a breach of the Act. The CRTC may issue an order requiring an activity to cease and taking corrective action on a prospective basis. However, there are limited powers to enforce compliance with the Act or to punish parties who breach it.

When the *Telecommunications Act* was proclaimed into force in 1993, Canadian telecommunications regulation still relied heavily on a traditional public utility model of monopoly service provision, using the rate base–rate of return method of regulation.[42] Under that model, the regulator and the service provider could focus on quality of service, extension of service through internal cross subsidies and the achievement of various social policy objectives. The likelihood of a deliberate breach of the regulatory statute was relatively low. In that context, prospective orders were generally a sufficient remedy. However, these approaches are inadequate in an era of increasingly competitive supply of telecommunications services.

In today's more competitive markets, a breach of the law or regulatory rules has the potential to provide a significant advantage to the transgressor and a permanent disadvantage to its competitors, by altering market share or even putting a smaller competitor out of business. In that context, prospective orders by themselves are insufficient remedies, since they do not necessarily deter the transgressor from future breaches.[43] A "try it out until you get stopped" approach may be viewed by some as an acceptable way of doing business. The Panel considers the absence of statutory authority for deterring unacceptable behaviour to be particularly unsatisfactory in an *ex post* model of regulation, with less detailed regulation and greater reliance on competitive forces.

#### *Bill C-37*

On December 13, 2004, the government introduced Bill C-37, which addresses problems with unsolicited telecommunications, or "telemarketing." The Bill, which received Royal Assent on November 25, 2005, amends the *Telecommunications Act* to establish the legislative framework for a national do-not-call list. More relevant to this section of the report, it also gives the CRTC the authority to impose administrative monetary penalties (AMPs) on persons whom it finds have breached the do-not-call rules.

The imposition of AMPs does not technically have criminal law connotations. AMPs are intended to serve as a deterrent rather than as punishment. They are therefore fundamentally different from fines imposed in relation to the commission of criminal offences. In addition, in an AMPs proceeding, the CRTC is required to be convinced only on the balance of probabilities that the breach occurred. This is a lower standard of proof than is required in the case of criminal prosecutions.

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[42] The first price caps decision was not issued until four years later: see *Price Cap Regulation and Related Issues*, Telecom Decision CRTC 97-9, 1 May 1997.

[43] Under s. 63 of the *Telecommunications Act*, the CRTC could make its order requiring future compliance an order of the Federal Court of Canada or of a superior court of a province. That would make any future breach an act of contempt of that court. However, this is a cumbersome process that has rarely been used by the CRTC.

The Panel supports the thrust of Bill C-37. In the Panel's view, it is good public policy for the CRTC to have a variety of enforcement tools that can be tailored to respond to the breach involved. Clearly, some behaviour may require deterrence by the regulator, yet fall short of quasi-criminal activity to be punished by the state. Having the power to impose AMPs can fill this void.

### *Broader AMPs Power*

The Panel believes the CRTC should be given more general powers to impose AMPs as a regulatory enforcement mechanism, and not simply in the case of telemarketers. This broadened power should apply in respect of the breach of any provision of the *Telecommunications Act*, any regulation, decision or order made under that Act, any special Act, or any conditions, prohibitions or requirements properly imposed by the CRTC.

Any extended power should be the same in concept as contemplated in Bill C-37, namely, to determine, on the balance of probabilities, that a breach has occurred and to impose a penalty that does not carry with it any criminal connotations. In addition, the procedural safeguards that have been incorporated into Bill C-37 should be included in any broader AMP authority.

Recommending a maximum amount for a general AMP power is a challenge. A major thrust of this report is increased deregulation and a greater role to be played by competition law principles in an *ex post* regime. The *Competition Act* (ss.74.1(1)) currently allows the Competition Tribunal to impose AMPs of up to $50 000 for a first offence and up to $100 000 for subsequent offences in the case of individuals and twice those levels for corporations. Bill C-19, which was given first reading November 2, 2004, but which died with the dissolution of Parliament, proposed to amend the *Competition Act* to provide substantial increases to the existing level of AMPs in certain instances.

Bill C-73, which was given first reading November 14, 2005, but which also died with the dissolution of Parliament, proposed to amend the *Telecommunications Act* to give the CRTC a general AMP authority, with the potential for substantial penalties that appear to be linked in amounts to those proposed for the *Competition Act* under Bill C-19.

The *Competition Act* is an act of general application and, as such, its AMP provisions apply to breaches of that Act by competitors in all sectors of the economy, except in specific areas that have been carved out, generally for purposes of sector specific regulation. The telecommunications sector is one such example. However, the Panel considers that the potential impact of a breach of a statutory provision was never the reason for sector specific treatment of telecommunications. Accordingly, the Panel supports the principle of linking the quantum of AMPs under both the *Telecommunications Act* and the *Competition Act*. It also supports the thrust of Bill C-73 and recommends that the government introduce a bill substantially similar to it, in the next Parliament.

The Panel also recommends that, as part of an AMP authority, the CRTC should be granted specific power to make ancillary and related non-monetary determinations and orders. These would be intended to improve the deterrent effect of the AMP itself through publicity. For example, this could include authority to direct the respondent to insert in all monthly invoices during a billing cycle an acknowledgment that it had breached the Act, had been penalized by the CRTC and had taken remedial steps to avoid future breaches.

> **Recommendation 9-13**
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> **The *Telecommunications Act* should be amended to grant the CRTC power to levy administrative monetary penalties at levels similar to those under the *Competition Act*. The CRTC should also be granted specific power to make related non-monetary orders designed to enhance the deterrent effect of the penalty.**

### Prosecutions

This report makes a number of recommendations that, if accepted by the government, will involve a significant shift of the telecommunications regulatory framework toward more deregulation, more *ex post* regulation and more industry self-regulation. In such a regulatory environment, it will be absolutely essential, in the Panel's view, to have in place what Bell Canada referred to in its submission to the Panel as "sufficient deterrence mechanisms"[44] against all forms of unacceptable behaviour by telecommunications service providers. These deterrence mechanisms must be sufficient not only in terms of potential remedy or sanction, but also in terms of availability and timeliness.

A breach of the *Telecommunications Act* may also constitute an offence that makes the person liable to prosecution under s. 73. However, unlike most prosecutions under the Criminal Code and other statutes, which are commenced by the state itself, a prosecution under the Act may be commenced only by private initiative and only with the consent of the Minister of Industry or the CRTC, depending upon the offence. The Minister and the CRTC do not themselves initiate prosecutions. This means that prosecutions will be commenced only by competitors, customers or possibly public interest groups. It is the Panel's understanding that, to date, there has only been one prosecution commenced — without a conviction — since the Act came into force.

The Panel believes competitors and customers may have little incentive to seek consent to initiate a private prosecution for a number of reasons:

- They may regard prosecutions as the responsibility of the state and/or the regulator rather than the responsibility of private initiative.
- The burden of proof in a criminal prosecution is to establish guilt beyond a reasonable doubt. This requires extremely convincing evidence, and private prosecutors may have difficulty in obtaining access to documents held by the accused that would assist in the case.

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[44] Bell Canada submission August 15, 2005, Section B, page 52.

- The delays and expense associated with seeking consent and then initiating a prosecution may act as a further deterrent.
- They may conclude that the maximum fines provided under the Act are too low in the circumstances and not worth the effort.

The Panel sees no principled basis for treating offences committed under the *Telecommunications Act* in this manner. The state has an interest in ensuring that its telecommunications laws are obeyed. There may be merit in retaining the ability to initiate private prosecutions. However, the state should not in effect completely outsource this responsibility to competitors or customers and compound the challenge by including the requirement that they obtain consent before initiating a private prosecution.

The CRTC is generally in the best position to know whether it is likely that an offence has been or is about to be committed under the *Telecommunications Act* or any special Act, but it does not have the expertise to conduct prosecutions. Accordingly, the Panel recommends that, in such circumstances, the CRTC should first satisfy itself with the underlying facts and, in appropriate cases, have the authority to refer the matter to the Attorney General of Canada for possible prosecution. A similar type of authority has been granted to the Commissioner of Competition under the *Competition Act* (s. 23).

**Recommendation 9-14**

**The *Telecommunications Act* should be amended to remove the need to obtain the consent of either the Minister or the CRTC to initiate a prosecution under the Act.**

**Recommendation 9-15**

**The *Telecommunications Act* should be amended to authorize the CRTC to refer possible offences under that Act or any other telecommunications legislation to the Attorney General of Canada for investigation and possible prosecution.**

The Panel has considered whether the current fines, which are intended to be actual punishments for quasi-criminal behaviour and not mere deterrents, are adequate. It concludes that they are not. It notes that Bill C-73, among other things, would have substantially increased the fines that could be imposed for offences.

The Panel has concluded that competition law principles should play a greater role in the overall regulatory scheme of the telecommunications sector in Canada. This greater interplay should also extend to greater coordination of fines and related punishments for offences.

It is quite conceivable that an offence committed under the *Telecommunications Act* could have a considerable impact upon competition in the telecommunications sector, especially as Canada moves toward greater reliance on ICT as a driver of the overall economy. This impact could be as great as or greater than the impact that offences committed under the *Competition Act* may have on other sectors of the economy. The Panel therefore supports the initiative in Bill C-73, with its proposed increases in fines for offences committed under the *Telecommunications Act*.

**Recommendation 9-16**

**The *Telecommunications Act* should be amended to increase the fines for offences under the Act to levels similar to those in the *Competition Act*.**

The Panel also believes it would be appropriate for the government to review the *Telecommunications Act* to link potential fines more directly to the gravity of the offence involved. As an example, the fine for operating without a basic international telecommunications licence, which is essentially granted as a right by the CRTC and which the Panel recommends repealing, is four or five times as high as the fine for a Canadian carrier with significant market power breaching one of its approved tariff provisions.

In addition, if the need to obtain the consent of the CRTC or the Minister is repealed as recommended, the *Telecommunications Act* should also be amended to include the possibility of a due diligence defence; that is, the accused took reasonable precautions to ensure that it did not commit an offence. For example, if a Canadian carrier does not qualify as "Canadian" as defined in the *Telecommunications Act* and regulations, there does not appear to be a defence of due diligence available to it and it is liable to a fine that is four or five times as high as the fine for knowingly making a material misrepresentation to the CRTC. This appears to the Panel to provide for a lower fine for a graver offence and also appears to fail to allow an accused Canadian carrier the possibility of demonstrating that it took all reasonable precautions to ensure that it did in fact qualify as such.

**Recommendation 9-17**

**The government should review the *Telecommunications Act* to link potential fines for offences more directly to the gravity of the offence committed and to add a due diligence defence in appropriate cases.**

### Actions for Damages

The CRTC does not have a specific power under the *Telecommunications Act* to award damages to compensate parties who have sustained losses due to breaches of the Act, regulatory decisions or orders.[45] Actions for damages must be brought in the courts. This can mean that a competitor who believes the *Telecommunications Act* has been breached must bring a complaint to the CRTC to have the breach corrected. The competitor must then launch a separate lawsuit in the courts to sue for compensation by way of damages.

Extending the power to award damages to the CRTC has the intuitive appeal of one-stop shopping, which could reduce both the costs and the time consumed in litigation. However, the Panel concludes that it would not be appropriate to expand the authority of the CRTC to include this power. Consistent with its overall approach of capturing comparative expertise, the Panel is persuaded that the courts have greater expertise in assessing damages. This comparative advantage outweighs any disadvantage that continuing the *status quo* presents. The Panel is also concerned that granting the CRTC this new power could raise constitutional issues that could take a considerable period of time to resolve.[46]

In addition to the constitutional question, the Panel concludes that granting the CRTC the power to award damages would almost certainly detract from the CRTC's focus on its regulatory responsibilities under the *Telecommunications Act*, thus undermining the core themes of this report.

The Panel believes its recommendations with respect to a new TCA, discussed in Chapter 6, should provide relatively expeditious and inexpensive resolution for the vast majority of residential and small business complaints. These are the complainants most likely to be sensitive to costs and delays associated with litigation.

Although the Panel believes the courts have greater expertise in assessing damages generally, it also believes the CRTC has greater industry-specific and technical expertise in assessing the issue of liability in telecommunications matters. Improvements to the current system can be implemented that will capture this comparative advantage. In its comments, TELUS had suggested that a possible improvement might be to recognize CRTC decisions regarding carrier liability as *prima facie* evidence in court of liability. As a practical matter, this means, once the CRTC had found a carrier liable for having breached the Act, that the plaintiff would not have to prove carrier liability in a subsequent civil lawsuit. Instead, the onus would shift to the carrier. If it could not disprove its liability, the court would then assess the damages that flowed from that liability.

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[45] Section 72 does give aggrieved parties certain rights to sue for damages in the courts. However, ss. 72.(3) appears to prevent actions based on breach of contract to provide telecommunications services, thus limiting ss. 72.(1) to actions based on civil wrongs, such as negligence.

[46] Under ss. 92.(13) of the *Constitution Act*, 1867, for example, the provinces have exclusive jurisdiction over matters relating to property and civil rights.

The Panel supports the concept that a CRTC decision regarding telecommunications service provider liability[47] should be *prima facie* admissible to prove a violation by that provider of any provision of the *Telecommunications Act*, any regulation, decision or order made under that Act, any special Act, or any conditions, prohibitions or requirements properly imposed by the CRTC, leaving the matter of assessment of damages to the courts. Given the comparative expertise of the CRTC with respect to the issue of liability, the Panel anticipates that the courts would be prepared to show a considerable degree of deference to CRTC findings.

**Recommendation 9-18**

**The *Telecommunications Act* should be amended to provide that, in any civil court proceeding, a CRTC decision regarding the liability of a telecommunications service provider for a breach of the Act or regulatory measures established under the Act should be *prima facie* evidence of such liability.**

The Panel also notes that the wording of s. 72 of the *Telecommunications Act* is quite confusing and should be clarified. Subsections 72.(1) and (2) appear to grant the right to sue for damages in court within two years after a cause of action arises. However, under one interpretation of ss. 72.(3), the ability of a potential complainant to sue for a breach of contract, a contract to provide telecommunications services or any rate charged by a Canadian carrier is precluded; under another — inconsistent — interpretation of that subsection, not only is such a lawsuit permitted, but also the two-year time limitation does not apply.[48]

The Panel believes, in an increasingly competitive and unregulated telecommunications environment, there should be no limitations on the right of parties to sue for damages in the courts, other than generally applicable statutory limitation periods. Section 72 should be amended to ensure that it does not limit the right to sue for damages in the courts for a breach of the *Telecommunications Act* or a breach of contract. The Panel believes any clarification of the section should have no impact on the ability of a Canadian carrier to raise what is known as the "regulated conduct doctrine" if that is appropriate in the circumstances.[49]

**Recommendation 9-19**

**The *Telecommunications Act* should be amended to ensure that it does not place limitations on the right to sue for damages in the courts for a breach of the Act or a breach of contract.**

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[47] The TELUS proposal had focused on carriers. The Panel is proceeding on the assumption that the *Telecommunications Act* will be amended to provide for direct CRTC jurisdiction over all telecommunications service providers, that is, facilities-based carriers and resellers of telecommunications services that rely on the facilities of others.

[48] In *Sprint Canada Inc. v. Bell Canada* (1997) 79 C.P.R. (3d) 31 (Ont. Ct. Gen. Div.), aff'd 116 O.A.C. 297 (C.A.), the trial judge held that ss. 72.(3) barred a court action for damages in relation to a rate charged by a telecommunications carrier; on appeal, the court affirmed the decision but declined to affirm the trial judge's analysis of the subsection. In *934691 Ontario Inc. cob First Media Group Inc. et al v. Bell Canada* (2001) Ont. S.C.J. Ct. File 99/2520, the trial judge held that ss. 72.(3) takes a cause of action away from the courts if there is an allegation of breach of contract to provide telecommunications services. On appeal, the court stated that it did not agree with the trial judge's comments concerning jurisdiction. See *934691 Ontario Inc. v. Bell Canada*, August 15, 2002 docket CA C37453.

[49] For the leading cases on the regulated conduct doctrine, see: *R. v. Canadian Breweries Ltd.*, [1960] O.R. 601 (HCJ), *Attorney General of Canada v. Law Society of British Columbia* (the "Jabour" case) (1982), 127 D.L.R. (3d) 1 (S.C.C.) and *Garland v. Consumers' Gas Company*, [2004] 1 S.C.R. 629.

## Appeals from CRTC Decisions

The *Telecommunications Act* permits an appeal to the Federal Court of Appeal from any CRTC decision on any question of law or of jurisdiction, provided that leave to appeal is first obtained from the court.[50] A number of parties suggested to the Panel that the requirement to obtain leave should be repealed. They noted that the threshold for obtaining leave is low and that the process simply added delay and expense and in effect required parties to argue their cases twice.

In addition, Bell Canada submitted that CRTC decisions should be subject to appeal to the Federal Court of Appeal on questions of fact, with leave of the court, noting that a similar power already exists with respect to decisions of the Competition Tribunal.[51] TELUS submitted that if the CRTC were given jurisdiction to award AMPs, the courts should have the power to review those decisions on the facts.

### Appeals on Law or Jurisdiction

The requirement to obtain leave to appeal on matters of law or jurisdiction does not appear to serve a useful function. The threshold test that is applied in considering leave applications is a low one. Despite this relatively low barrier, the court over the years has not been inundated with applications for leave to appeal from CRTC telecommunications decisions. However, the leave process does require the expenditure of additional human and financial resources.

Consistent with its approach of removing unnecessary delays in the regulatory process, the Panel recommends repealing the requirement to obtain leave from the Federal Court of Appeal before commencing appeals from CRTC decisions on matters of law or jurisdiction.

**Recommendation 9-20**

**The *Telecommunications Act* should be amended to repeal the requirement to obtain leave to appeal a decision of the CRTC to the Federal Court of Appeal on any question of law or of jurisdiction.**

### Appeals on Facts with Leave

The Panel considers that there is no logical connection between granting the CRTC power to levy AMPs and allowing the courts to review a decision on the facts. Some CRTC decisions involve greater amounts of money than a proceeding in which an AMP may be levied, yet there is no appeal on the facts. In addition, the Panel believes the CRTC will have a level of expertise not necessarily available to the courts in determining the AMPs that should be imposed in any particular case.

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[50] *Telecommunications Act*, ss. 64.(1). The method of obtaining leave is set out in ss. 64.(2) and (3).

[51] *Competition Tribunal Act*, S.C. 1986, c.26, s. 13.

More generally, the Panel is not convinced that adding a provision allowing for an appeal on facts, even with the leave of the court, would be desirable. The CRTC has been established by Parliament as the expert tribunal with respect to telecommunications regulatory matters. The recommendations to enhance the CRTC's professional expertise, discussed above, should improve the Commission's capacity in this regard. Many telecommunications proceedings are lengthy and factually very complex. Adding the potential for judicial review of CRTC decisions on the facts could undermine the CRTC's status as the expert tribunal in telecommunications matters. The proposal would also add a new level of delay to the regulatory process, something that the Panel is attempting to reduce wherever possible.

The fact that there is provision for appeals on findings of fact from the Competition Tribunal, does not alter the Panel's thinking on the matter. The structure of the Competition Tribunal is quite different from that of the CRTC. Judicial members of the Competition Tribunal[52] play a pervasive role in its activities. In addition, the tribunal is called upon to make determinations on competition laws of general application to all sectors of the economy.[53] As such, the tribunal is more of a hybrid form of specialized court than expert regulatory tribunal. In light of the different overall composition of the two institutions and their different mandates, the Panel believes the CRTC is better equipped to make findings of fact in telecommunications matters under its jurisdiction and that those findings should not be subject to appeal, even with leave.

### Alternative Dispute Resolution

The CRTC has made significant progress in reducing the regulatory lag associated with competitive disputes between telecommunications service providers, notably through its expedited dispute resolution process.[54] However, this is still a relatively formal process that typically involves the assignment of a panel of three commissioners (with associated support staff) to hear and decide the matter under dispute. This process involves a level of formality and dedication of CRTC resources that is not necessarily required to address competitive disputes in a manner that would be acceptable to the participants and consistent with the public interest.

The Panel believes the Commission could rely more on alternative dispute resolution (ADR), which can involve various types of mediation, arbitration or variants of these options. ADR is currently used at the staff level of the CRTC and, in theory, external ADR is already available to disputing competitors in certain cases. However, not all potential competitors may be aware of the availability of external ADR. More importantly, where a respondent in a dispute has significant market power (SMP), it may wish to delay or even thwart the efforts of the applicant to proceed to quick resolution via external ADR.

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[52] Judicial members, who include the chairman of the tribunal, are appointed from among the Federal Court. At least one judicial member must participate in every application to the Tribunal. See R.S.C. c. 19 (2nd Supp.), ss. 3, 4 and 10.

[53] The jurisdiction of the Competition Tribunal is set out in s. 8.

[54] The process is set out in *Expedited procedure for resolving competitive issues*, Telecom Circular CRTC 2004-2, February 10, 2004.

### Expediting Dispute Resolution

ADR can offer clear benefits in the form of faster and less expensive resolution of disputes, less formality and the potential for greater confidentiality in increasingly competitive markets. The Panel supports the CRTC's efforts to make expedited dispute resolution an integral part of its overall regulatory tool kit, but believes more can be done in the area of ADR.

At this point, it is premature to attempt to prescribe a particular form of external ADR to supplement the CRTC's existing procedures. For example, if the TCT is created, its activities may have an impact on the need for — and form of — external ADR. However, the Panel recommends that the *Telecommunications Act* should be clarified to ensure that the CRTC has available to it the option of mandating ADR in appropriate cases. The CRTC should have the power to mandate ADR under its own auspices, in cases involving matters of regulatory policy and also on an outsourced basis, for disputes that do not involve policy matters.

The Panel notes that there is a model for a form of essentially outsourced ADR in the *Canada Transportation Act*, which may be of assistance in the government's consideration of this issue.[55] The principal limitation with the model is it's restriction to the use of final offer arbitration as the only acceptable ADR approach. The Panel sees no reason to limit the format of outsourced ADR, which should include any format the parties may wish to adopt.

**Recommendation 9-21**

**The *Telecommunications Act* should be amended to ensure that the CRTC has the power to mandate alternative dispute resolution both by the CRTC itself and on an outsourced basis in appropriate cases.**

## Streamlining the Tariff-filing Process

Every year the CRTC expends a considerable portion of its resources in the review and approval process of individual tariff proposals filed by individual Canadian carriers. These reviews frequently involve an assessment of related materials filed by the carriers, such as economic evaluation studies in support of proposed rates.

Carriers are required to file these supporting materials in an effort to confirm that the proposed rates comply with various regulatory requirements that have been established by the CRTC. Ironically, there is no requirement that the filing carrier actually state as a fact that the filing is in compliance. This means that the CRTC staff must examine the materials to ascertain whether its rules have been met, before recommending acceptance of the filing to the commissioners. As such, the supporting materials are in reality "documents of justification" rather than "documents of compliance."

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[55] S.C. 1996, c. 10, Part IV (s. 159 to 169).

### Proposed Improvements

The current approach to tariff filings produces a number of adverse consequences. It involves considerable CRTC resources in the review analysis. It inevitably contributes to regulatory lag. The filing carrier claims confidentiality with respect to much of what is contained in the documents of justification. This means that interested parties do not see the unabridged material. This in turn limits their ability to comment on it and reduces the transparency that should be associated with the regulatory process.

Most importantly, the process places the onus on the wrong party. The Panel believes the onus of regulatory compliance should remain at all times with the filing carrier. This will be particularly true in the context of a negative disallowance regime.

It would be far more efficient to replace the filing of these documents of justification with a document certifying compliance. The Panel envisages that this approach would require certification of compliance with a simple checklist of regulatory requirements to replace much or all of the supporting information currently filed with the CRTC, other than the actual proposed tariff pages. The checklist would be developed by the CRTC in consultation with the industry and would become an appendix to the *CRTC Telecommunications Rules of Procedure*. It would list all of the requirements that must be met by any Canadian carrier that is filing a proposed tariff,[56] in order for it to be approved under the current *ex ante* regime and for it not to be suspended under the negative disallowance *ex post* regime.[57] The checklist could be modular so that it applied to all filings, but the filing carrier would only be required to check applicable items and to indicate "N/A" on non-applicable items. The carrier would include the checklist with its filing with the CRTC.

A key component of this recommendation is having a senior officer of the filing carrier sign a certificate of compliance, declaring that the completed checklist had been personally reviewed by the officer and that it was true in every respect. Certification of full compliance with the regulatory requirements of the checklist would result in automatic acceptance of the tariff filing — under both the current *ex ante* regime and the proposed negative disallowance *ex post* regime — unless and until it was challenged. A certification including any reservations or exclusions would result in the approval being delayed or the filing being suspended until the CRTC had conducted a review to determine whether it was acceptable.

This form of compliance certification would significantly reduce regulatory lag and free up CRTC and industry staff resources. It would place the onus of compliance on the filing carrier. The compliance certificate would be admissible as evidence against the carrier in any subsequent proceedings that challenged its veracity.[58] In addition, the Panel's enforcement recommendations — to give the CRTC the power to levy AMPs, to reduce barriers to criminal prosecutions and to bring fines into line with those of the *Competition Act* — should ensure that the certification process is not treated lightly by filing carriers.

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[56] The Panel considered the option of recommending a simple statement to the effect that the filing was compliant, but rejected that approach for two reasons. The first is that it would be difficult to criticize or fine a carrier for breaching one or more regulatory requirements if they were not specified. The second is that requiring the CRTC to set out all applicable requirements in one document will provide an opportunity to reassess the ongoing need for each requirement prior to its inclusion.

[57] For example, in today's context the checklist would include statements that the proposed tariff met the imputation test, complied with all bundling rules and any price cap requirements, etc. In the future, regulatory requirements should be considerably reduced and simplified.

Adoption of a compliance certification approach should be a major short-term priority for the CRTC. It is a reform that can be implemented without legislative change and that can apply in both the current regulatory context of *ex ante* tariff approvals and in the Panel's recommended context of *ex post* negative disallowances.

**Recommendation 9-22**

**The CRTC should replace the obligation to file detailed studies and other documentation to justify applications for tariff approvals with a regime under which applicants certify compliance with a list of relevant regulatory requirements.**

### Increasing Regulatory Transparency

The *Telecommunications Act* and related statutes establish the skeleton of Canada's telecommunications regulatory framework but, as any regulatory lawyer will attest, "God is in the details" that flesh out the skeleton. The CRTC and Industry Canada have established a plethora of detailed rules to regulate conduct within the telecommunications industry. These rules are contained in a wide variety of documents, including regulations, rules, public notices, circulars, orders, decisions, tariffs and checklists.

Understanding regulatory rules and staying abreast of developments is a complex and — to many — an arcane process that requires sophisticated regulatory, economic and legal experts. To some extent, this is to be expected in a sector such as telecommunications.

The procedural complexity of Canadian telecommunications regulation has evolved over time. Sometimes an application to the CRTC for approval of a specific tariff filing may trigger a public process that ultimately leads to a decision that contains a major policy announcement.[59] On other occasions, the CRTC may issue a public notice that leads to such a decision.[60] However, in the rapidly evolving telecommunications environment, decisions that establish major elements of the regulatory framework rarely remain stand-alone documents. They are changed over time, through applications to review and vary, amendments, follow-up proceedings, tariff filings of specific carriers, etc. As a result, it has become difficult to ascertain the current rules that govern some areas of regulated conduct.

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[58] *Telecommunications Act*, ss. 66.(1).

[59] See, for example, *Competition in the Provision of Public Long Distance Voice Telephone Services and Related Resale and Sharing Issues*, Telecom Decision CRTC 92-12, June 12, 1992.

[60] See, for example, *Local Competition*, Telecom Decision CRTC 97-8, May 1, 1997.

For example, the Panel's staff searched the CRTC's website[61] for information on five specific matters that are the subject of CRTC rules and obtained the following results:

- "affiliate rule" — 33 responses
- "CLEC (competitive local exchange carrier) obligations" — 22 responses
- "imputation test" — 558 responses
- "local competition" — 506 responses
- "long distance competition" — 67 responses.

Some of the responses addressed the issue in the context of a specific filing or complaint, while others provided links to earlier versions of the current rules. However, the task of sifting through all of the responses to locate the fundamental — and current — rules is more difficult than the Panel believes is appropriate for Canadian telecommunications regulation in the 21st century.

The result is that regulatory compliance is more costly and time consuming than it needs to be. It also means that regulation is not as transparent as it should be. The discussion in this chapter regarding the CRTC Rules provides one example of this state of confusion.

### Consolidating CRTC Regulatory Rules

The Panel believes efforts should be taken to consolidate, update and simplify:

- all regulatory rules dealing with each area of regulated conduct into a single coherent document
- all regulatory rules collectively into a single set of CRTC rules — or a consolidated regulatory code.[62]

The Panel recommends directing the CRTC to establish a consolidated regulatory code of rules. Over time, the code should become a single reference source for all regulatory rules of general application in telecommunications markets.[63] It should be made easily accessible on the CRTC website and updated regularly. The code should include only current rules, and the CRTC should clearly state when any prior document has been amended or replaced by a subsequent document.[64]

Compiling a consolidated regulatory code is a significant task. The Panel believes it can best be accomplished by dividing it into prospective and retrospective elements.

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[61] The search was conducted January 4, 2006.

[62] In this discussion, the Panel uses the term "rules" in the widest possible sense. It is intended to cover all regulatory requirements, regardless of their formal title and regardless of where they may be located (policies, decisions, orders, letters, circulars, regulations, rules of procedure, etc.) that must be adhered to by any telecommunications service provider.

[63] The Panel notes that the *Canadian Broadcasting Regulatory Handbook*, which is published privately in Canada, attempts to provide this type of compilation, on an unofficial basis, for the broadcasting sector.

[64] The Panel notes that the CRTC routinely does this on the broadcasting side, when it publishes its *Revised lists of eligible satellite services from time to time.*

On a prospective basis, whenever the CRTC issues a decision or document that establishes or amends a telecommunications rule or otherwise changes the regulatory framework applicable to the industry, it could ensure that the document contains a separate rule or "order" that sets out the actual rules flowing from the decision. This separate order should also include clear references to other applicable rules or decisions. This separate order would be added to the consolidated code of rules. This is similar to the process adopted by the FCC in the U.S., and the Panel believes it will contribute considerably to the openness and transparency of the regulatory framework in Canada. The Panel believes the CRTC could begin to implement this approach immediately on a prospective basis, without undue difficulty or delay.

On a retrospective basis, the difficulty of the task depends in large measure upon the government's response to the Panel's recommendations. If the overall response is positive, the Panel expects a substantial reduction in the number of existing CRTC rules that will continue to be relevant going forward. For example, if the government implements the principle of negative disallowance in place of *ex ante* positive tariff approvals, much of the current regime of tariff-filing rules and decisions governing supporting documentation will no longer be applicable and will not need to be included in the code.

It is clear, however, that a number of existing rules will continue to be relevant. The Panel recommends, with respect to those rules, directing the CRTC to establish a team to extract and consolidate them over time into the code. To provide a reasonable time frame to accomplish this important task without drawing too heavily on existing CRTC resources, the Panel recommends accomplishing this task over a three-year period, so it will be completed before the first review of the telecommunications regulatory framework, as the Panel recommends earlier in the report.

The task of undertaking a retrospective review of the CRTC's regulatory framework along with updating and consolidating it is an important one that the Panel believes should attract a high priority from the CRTC. The exercise will improve openness and transparency of telecommunications regulation in Canada. It will also benefit the CRTC's process by obliging it to reassess the ongoing validity of many of the existing rules that have been imposed on regulated entities over the years and that may no longer be appropriate in the new regulatory environment envisaged in this report.

Creating and maintaining a consolidated code of rules will produce several benefits:

- As noted, the act of consolidating its regulatory rules will require the CRTC to review all existing decisions, orders, tariffs, etc., that impose the rules to determine which are still appropriate. This process will result in the repeal or streamlining of some existing rules.
- Over time, the consolidated rules will serve as a one-stop source for anyone attempting to understand or comply with the regulatory framework governing particular types of regulated conduct.
- Consolidation of the rules will make regulatory compliance less time consuming and less costly.
- The consolidation will improve the transparency of the regulatory framework.

**Recommendation 9-23**

**The CRTC should establish a single code of the regulatory rules that apply to telecommunications markets by consolidating and updating rules now contained in various decisions, orders, rules, regulations, public notices, circulars and other documents. This consolidated approach to rule making should be applied prospectively in the case of new CRTC rules. In the case of the CRTC's existing rules, the consolidation should be completed within three years.**

### Reducing Authorization Requirements

The Panel believes it is important to remove or reduce barriers to competitive entry into telecommunications markets. Consequently, the Panel believes the licence or authorization requirements for entry into the telecommunications business should be simplified and reduced, and all such authorization requirements should be consolidated under a single regulatory institution, the CRTC. As discussed in Chapter 5, this approach necessitates the transfer of licensing and other responsibilities currently exercised by Industry Canada in telecommunications matters to the CRTC.

This transfer of responsibilities is consistent with international best practices in telecommunications regulation. The OECD has reported that, of its 30 member countries, only Canada, Finland and Spain divide responsibility for fixed and mobile market entry between the independent regulator and the ministry.[65] The report notes that an independent regulator is often free of short-term political pressure and it can avoid the potential conflict of interest that may occur if the regulator is also responsible for industry promotion.

The OECD report further notes that a majority of countries reviewed have designated the regulator as the entity responsible both for spectrum planning and spectrum allocation.[66] The shift with respect to spectrum planning and allocation has been a relatively recent phenomenon, occurring principally within the past five years.

The recommended realignment of responsibilities under the CRTC is a more efficient method of providing regulatory services to the sector. The authors of the Smart Regulation report stressed the need for "single windows" as one of the five principles in their report. They defined "single window" as a single point of contact for the entire federal government to liaise with a specific industry sector.[67] The Panel agrees that the "single window" concept should apply to the telecommunications sector.

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[65] See OECD, *Telecommunication Regulatory Institutional Structures and Responsibilities*, p. 18, Table 6. Italy, Japan, South Korea, Luxembourg and Mexico still leave responsibility for all fixed and mobile market entry to the ministry.

[66] *Ibid.*, p. 22, Table 8.

[67] EACSR, *Smart Regulation*, p. 33.

### Authorizations and Licensing

The Panel recommends in Chapter 3 that economic regulation should apply only where telecommunications service providers offer services in respect of which they possess significant market power. With respect to all other telecommunications services, the Panel recommends that the overall regulatory approach should shift significantly to general authorizations and rules applicable to all service providers of the same class.

Canada does not have a tradition of licensing telecommunications service providers in the same way as most other countries. The Panel does not recommend that it adopt such a licensing approach for a number of reasons:

- Licensing of entities not possessing significant market power unnecessarily increases barriers to competitive entry and introduces an element of regulatory or political discretion.
- Licensing requires additional attention to specific conditions of licence.
- Licensing may appear to confer some form of legitimacy on the holder of such a document.

Accordingly, unless there is a compelling reason to the contrary, the Panel believes mandatory licensing of service providers should be replaced with a simple registration requirement wherever possible. Licensing requirements should normally be restricted to those related to the assignment of scarce resources, such as radio spectrum — but should not apply to the simple right to enter telecommunications markets. This approach away from licensing requirements is consistent with better regulatory practices being adopted in the European Union and elsewhere.

### Certificates of Registration

The Panel believes there is merit in permitting anyone operating telecommunications facilities to be entitled to obtain a certificate of registration as a telecommunications service provider from the CRTC for a nominal fee. Such a certificate would be evidence of authority to construct and operate a telecommunications undertaking in Canada under federal telecommunications legislation. This document would not exempt the holder from any other laws of general application. However, it has the potential to be useful in disputes with other entities that typically arise in the context of access to rights-of-way, support structures, etc. As discussed in Chapter 5, the Panel believes the federal telecommunications regulatory framework should provide means to avoid and resolve such disputes in an effective manner.

#### Recommendation 9-24

**The *Telecommunications Act* should be amended to provide that anyone operating telecommunications facilities is entitled to obtain a certificate of registration as evidence of its authority to operate as a telecommunications service provider in Canada.**

### Licensing: Basic International Telecommunications Services

The basic international telecommunications services (BITS) licence regime was instituted as a result of amendments to the *Telecommunications Act* in 1998.[68] It came about as part of Canada's commitments to the World Trade Organization (WTO) to terminate the monopoly previously held by Teleglobe Canada with respect to Canada–overseas telecommunications traffic.

When it was first established, the CRTC stated that a licensing regime was useful to deal with instances of anti-competitive conduct. However, in June 2005, the CRTC streamlined the filing requirements that it had initially imposed, based on the fact that it had not received any complaints about anti-competitive behaviour since the regime had been instituted.[69] The Commission also extended the length of new licence terms from five to ten years, the maximum allowable under the *Telecommunications Act* and, effective immediately, extended all existing licences by a four-year period.

The BITS licence regime serves very little purpose that could not be accomplished by a registration regime and other regulatory approaches. Therefore, the Panel recommends abolishing the BITS licensing requirements and repealing s. 16.1 to 16.4 of the *Telecommunications Act* and related sections.[70] The Panel is of the view that the regime serves no useful purpose, unnecessarily gives the appearance of limiting open entry and consumes unnecessary resources on the part of both the CRTC and licensees. The Panel recommends replacing the current system with the general registration requirement applicable to non-dominant telecommunications service providers and subject to generally applicable information provision requirements.

**Recommendation 9-25**

**The requirement to obtain a licence under the *Telecommunications Act* to provide basic international telecommunications services should be repealed and replaced with a simple registration regime.**

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[68] *Regulatory Regime for the Provision of International Telecommunications Services*, Telecom Decision CRTC 98-17, October 1, 1998. The relevant provisions of the *Telecommunications Act* are set out in sections 16.1–16.4.

[69] *Basic international telecommunications services (BITS) licensing regime — Amendments*, Telecom Circular CRTC 2005-8, June 23, 2005.

[70] These would include para. 67.(1)(b.1) and (b.2). Subsection 73.(1) would have to be reworded to remove the reference to ss. 16.1(1) and (2).

### Licensing: International Submarine Cable

The international submarine cable licences regime was updated in 1998 as part of Canada's commitments under the General Agreement on Trade in Services, whereby Canada agreed to permit, as of October 1, 1998, foreign investment of up to 100 percent for operations conducted under an international submarine cable licence.[71] This too was part of the termination of the monopoly previously held by Teleglobe Canada. The effect of this termination is that there now are no significant restrictions on entry into the international submarine cable market. In addition, the Canadian ownership and control restrictions are not relevant with respect to the ownership or operation of international submarine cables.[72]

Although ss. 19.(1) of the Act states that a licence "may" be granted by the Minister, there appears to be no reason for this discretion based on telecommunications policy, since the original intent of limiting entry into this market no longer exists. Moreover, although ss. 19.(2) provides that "An international submarine cable licence may contain such conditions as the Minister considers are consistent with the Canadian telecommunications policy objectives," the terms that have been prescribed do not impose any substantive obligations on the operators of cables.[73] The requirement in the conditions to provide information can be addressed in the recommended registration regime for the CRTC. The requirement in the conditions to demonstrate compliance with the environmental laws is duplicative in the sense that the relevant environmental legislation binds submarine cable operators in any event.

The provisions in the *Telecommunications Act* relating to submarine cables do not apply to cables situated entirely under fresh water.[74] This means that they have no application to cables running between Canada and the U.S. via the Great Lakes. With the termination of Teleglobe Canada's monopoly for Canada–overseas telecommunications traffic in 1998, there no longer appears to be a policy or regulatory basis upon which to make this distinction.

The Panel sees no justification for the continuance of these statutory provisions and recommends repealing s. 17 to 20 and ss. 22.(2) of the *Telecommunications Act* and related sections[75] and the *International Submarine Cable Regulations* and replacing them with the CRTC registration regime recommended above.

**Recommendation 9-26**

**The requirement to obtain a licence under the *Telecommunications Act* to construct or operate an international submarine cable should be repealed and replaced with a simple registration regime.**

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[71] The relevant provisions of the *Telecommunications Act* are set out in s. 17 to 20 and ss. 22.(2).

[72] *Telecommunications Act*, para. 16.(5)(a).

[73] *International Submarine Cable Licences Regulations*, SOR/98-488.

[74] See the definition "international submarine cable" in s. 2 of the *Telecommunications Act*.

[75] These would include the definition of "international submarine cable" in s. 2 and para. 16.(5)(a). Subsection 73.(1) would have to be reworded to remove the reference to s. 17.

## The *CRTC Telecommunications Rules of Procedure* and Costs Awards

The CRTC enacted its *CRTC Telecommunications Rules of Procedure* (SOR/79-554) with a view to setting out the processes that would apply in the various proceedings before it. However, there have been few amendments to the Rules since they were enacted more than 25 years ago. Today they no longer accurately reflect the nature of proceedings before the CRTC nor technological developments such as the widespread use of the Internet for filings related to regulatory proceedings.

If the Panel's recommendations are adopted by the government, the timely resolution of competitive disputes becomes increasingly critical. The Rules give a misleading impression of the time required by the CRTC to dispose of a competitive dispute and there is no reference in the Rules to the *CRTC's expedited dispute resolution process*[76] or to a number of other procedural matters that have instead been addressed in CRTC circulars.[77] In addition, although the CRTC has virtually complete discretion with respect to the awarding of costs in any proceedings before it, there is no reference in the Rules that accurately reflects its approach to this issue.[78]

One of the adverse consequences of the disparity between the Rules and actual practice before the CRTC is that it must routinely issue directions on procedure to govern the conduct of nearly every proceeding that comes before it. Those directions prevail over the Rules in the event of any inconsistency.[79]

### Updating the Rules of Procedure

The *ad hoc* approach to procedure in telecommunications matters is detrimental to the openness and transparency that should be characteristic of an independent regulatory tribunal such as the CRTC. It leaves affected participants with no prior knowledge of the process that is to be adopted in any given proceeding. It also requires additional CRTC resources and delays to design rules applicable to each matter. In the Panel's view, the use of *ad hoc* procedures should be the exception, not the rule.

Parties appearing before the CRTC are entitled to expect all relevant rules to be contained within one document and, further, consistent application of those rules on an ongoing basis. The expedited processes and other procedural matters that are addressed in circulars or elsewhere should be incorporated into the Rules, unless there is a compelling reason to exclude them.

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[76] *Expedited procedure for resolving competitive issues*, Telecom Circular CRTC 2004-2, February 10, 2004.

[77] See, for example: *Introduction of a streamlined process for retail tariff filings*, Telecom Circular CRTC 2005-6, April 25, 2005 (as finalized in *Finalization of the streamlined process for retail tariff filings*, Telecom Circular CRTC 2005-9, November 1, 2005) and *New procedures for disposition of applications dealing with the destandardization and/or withdrawal of tariffed services*, Telecom Circular CRTC 2005-7, May 30, 2005.

[78] Sections 44 and 45 of the Rules deal with the award of costs, but they are contained in Part III Applications for General Rate Increases. This leaves the impression that this is the only opportunity for costs awards, which is not the case.

[79] *CRTC Telecommunications Rules of Procedure*, s. 8.

The need for the consistent application of well-defined rules is a matter that will take on increased importance if the Panel's recommendations are adopted by the government. For example, the Rules will need to be amended to reflect the following changes:

- Negative disallowance will replace prior tariff approval requirements.
- General rate case proceedings will virtually disappear.
- There will be specialized panels, such as the proposed TCT.
- The new TCA will address most customer complaints.
- The CRTC will have new jurisdiction over spectrum-related matters and telecommunications apparatus.
- Competitive disputes may increasingly be settled by way of outsourced alternative dispute resolution methods.
- Filing of documents will be streamlined, as the CRTC and parties move increasingly to online publication and exchange of documents.

In addition to procedural changes that should be made to the Rules, the Panel also recommends directing the CRTC to change its substantive approach to the quality of evidence that it accepts in its proceedings. With some exceptions, the CRTC's general approach has been to accept almost all evidence offered to it and to make an assessment of the weight that it deserves in any particular case.

The Panel believes this approach is detrimental to the integrity of the regulatory process generally, because it lowers the overall quality of evidence upon which the CRTC ultimately bases its decision. The CRTC could take several steps to improve this situation:

- Require each side to a competitive dispute to disclose all information upon which it intends to rely at the outset, together with a certificate signed by an officer of each party certifying that all facts contained in the statement are accurate. Any new evidence could be submitted only with leave of the CRTC.
- Allow parties to apply for the right to cross examine an adverse party on any material filed with the CRTC. This process could be conducted separately, and a transcript could be made available to the CRTC upon completion.
- Require better evidence from any party seeking the stay of the implementation of any CRTC decision.
- Significantly reduce the reliance on interrogatories, as an aid to making a party's case.
- Generally apply the traditional rules of evidence on a more consistent basis.

With these considerations in mind, the Panel recommends directing the CRTC to conduct a thorough review of its Rules as part of the implementation of recommendations accepted by the government that do not require legislative changes. The goals of the review should be to:

- update the Rules to reflect current and future practices and procedures
- eliminate those rules that are outdated
- incorporate technological advances (through greater reliance on more transparent and efficient electronic filings for example)
- streamline and simplify the Rules wherever possible
- reduce delays
- limit the use of a "directions on procedure" provision to exceptional circumstances and require the CRTC to explain those circumstances when such an approach is used
- incorporate the above suggested improvements for the quality of evidence admissible in proceedings before it
- incorporate into one document all existing practices and procedures that are set out in other documents, to the greatest extent practicable.

The Panel anticipates that a second review may be required as part of the implementation of recommendations accepted by the government that do involve legislative changes. An example of such a change is the process adopted by the CRTC in determining whether to assess AMPs and the factors to be taken into account in assessing the quantum. However, since the implementation of this latter phase may take one or more years to complete, the CRTC should begin its review as part of the first phase. Recommendation 9-12, regarding the publication of specific proposals, should also apply to the process of reviewing the Rules.

Consistent with the overall approach of this report, the Rules should include a mandatory review requirement every five years.

**Recommendation 9-27**

**The CRTC should review, update and consolidate its *Telecommunications Rules of Procedure*. The updated Rules should include changes required as a result of implementing the recommendations of this report.**

**Recommendation 9-28**

**The CRTC should review its *Rules of Procedure* at least every five years, and update them continuously.**

### Costs Awards — Introduction

The CRTC's authority to award costs is set out in s. 56 of the *Telecommunications Act*. For several years, the CRTC has adopted a limited approach to the award of costs, which in practice has meant that only consumer and other public interest groups are eligible for costs awards on an ongoing basis.[80] Costs awards have become sources of ongoing funding for these groups. The justification given by the CRTC for its approach has been that other parties (normally telecommunications service provider competitors or large telecommunications service users) have a business incentive to appear before the CRTC and that the regulatory process is a cost of doing business.

### Reforming the Approach to Costs Awards

The Panel considers it appropriate to recommend a change in the CRTC's restrictive approach to the awarding of costs in proceedings before it. Courts routinely award costs in litigious matters and the interest that a litigant has in the matter is generally not a relevant consideration. Costs are awarded to reward success and/or to encourage settlement.

In many cases, seeking redress from the courts is an option not open to aggrieved parties in telecommunications matters, because of the regulated nature of the sector. However, there are occasions when parties appear before the CRTC in competitive dispute situations that are very analogous to breach of contract and/or civil wrongdoing cases that are taken to the courts.[81] There are also situations in which a competitor brings to the attention of the CRTC the fact that another party is breaching a tariff requirement, CRTC decision or other regulatory requirement. Correcting such behaviour is in the public interest.

Normally, contentious proceedings before the CRTC are relatively complex, detailed and lengthy. The Panel believes, regardless of the motivation behind a complaint, the complainant should not automatically be deprived of some compensation from the other party by way of costs awards, in the following limited circumstances:

- The case is proved to the CRTC's satisfaction on the balance of probabilities.
- The CRTC is satisfied that the behaviour of the responding party was clearly unreasonable or unjustifiable in the circumstances.
- The behaviour of the complainant has not disentitled it to costs.

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[80] There are exceptions, but these have been very limited and the CRTC has in each case noted the exceptional circumstance that led it to deviate from its normal approach.

[81] For example, an allegation by a competitor that a tariff-regulated Canadian carrier had breached a provision of a tariff under which the former obtained services, could not be litigated in the civil courts. It would have to be decided by the CRTC, even though the practical effect on the competitor might be essentially the same as if it was a plaintiff in a lawsuit involving an alleged breach of contract to provide services.

The Panel does not want to encourage unnecessary CRTC litigation. Nor is it convinced that the CRTC should move to a complete adoption of the general approach taken by the courts. As a rule, courts will normally award costs to a successful plaintiff and also to a successful defendant. This approach could mean that if the CRTC ultimately dismisses a complaint, for example, brought against a large incumbent carrier, the complainant may be obliged to pay for the costs incurred by the carrier in defending its actions. Payment of those costs would likely constitute a significant burden to a complainant. That possibility may deter potential complainants from bringing issues of apparently inappropriate behaviour to the CRTC.

Accordingly, the Panel recommends striking a balance by awarding costs to successful complainants only in clear cases of inappropriate behaviour and awarding costs against them only in clear cases of frivolous complaints.

The Panel notes that the CRTC could make a rule or regulation under para. 67.(1)(c) of the *Telecommunications Act* establishing the criteria for the awarding of costs that reflect these considerations.

The Panel believes the government should review its approach to the funding of public interest group participation in telecommunications proceedings. The market-driven framework recommended by the Panel raises questions about the appropriateness of the current practice of awarding costs to such groups.[82] The Panel believes, if the government places importance on such funding, it should be made available as a subsidy directly from government, for example, from the Office of Consumer Affairs in Industry Canada, rather than as a charge against telecommunications service providers. However, as with the above recommendation regarding the funding of improved research capabilities in the sector, the Panel recommends that any government commitment should adopt a multi-year approach.

**Recommendation 9-29**

**The CRTC should enact a rule or regulation establishing the criteria for the awarding of costs in proceedings before it. The criteria should be based on the principles that costs shall be awarded to successful complainants in clear cases of inappropriate behaviour and against them in clear cases of frivolous complaints.**

**Recommendation 9-30**

**The government should review the issue of public interest group participation in telecommunications regulatory proceedings. Funding for such participation should come from a multi-year commitment by government to subsidize such participation, rather than costs awards imposed by the CRTC on individual telecommunications service providers.**

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[82] Public interest groups would remain eligible for costs awards under the Panel's recommended new criteria.

## Recovering the Costs of Regulation

The *Telecommunications Act*, s. 68, gives the CRTC authority, with the approval of the Treasury Board, to make regulations prescribing fees payable for the recovery of all or a portion of the costs that it determines are attributable to its telecommunications responsibilities. The CRTC has enacted the *Telecommunications Fees Regulations*, 1995, under which it recovers these costs through fees that it levies on an annual basis. These fees are payable by Canadian carriers who are required to file tariffs with the CRTC during that year. The payment is based on the Canadian carrier's telecommunications operating revenues as a percentage of the telecommunications operating revenues of all Canadian carriers that are required to make such payments.

The Panel supports the concept of recovery of costs of regulation from industry participants. Although these costs in turn may be passed on to the users of telecommunications services, it is appropriate that they, rather than the general body of taxpayers, should ultimately bear this financial burden, since it is those users who benefit from the variety of protections offered to them by the regulatory regime.[83]

The structure of the regulations may have been appropriate at the time they were enacted, since most services were provided on a monopoly basis by tariff-regulated Canadian carriers, and the CRTC exercised jurisdiction over Canadian carriers only. However, since that time, a number of developments have called into question the appropriateness of continuing the current approach:

- Numerous non-facilities-based telecommunications service providers — some of which are quite large — have emerged that are not subject to direct jurisdiction of the CRTC, but whose activities necessitate the involvement of the regulator[84] and will come under direct jurisdiction of the CRTC if the Panel's recommendations in this regard are accepted by the government.
- A variety of facilities-based Canadian carriers are competitors to the tariff-regulated incumbents, but are not required to file tariffs because of their non-dominant competitive position. However, their activities can generate CRTC involvement, based on complaints from incumbents, complaints filed about the activities of incumbents, and complaints regarding various intercarrier matters.
- A Canadian carrier is liable to pay fees based on all of its telecommunications activities if even one of its services becomes subject to tariff regulation.

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[83] These include protection against abuse of significant market power through inappropriately high prices, unsatisfactory quality of service, as well as a variety of privacy safeguards.

[84] The CRTC extends its consumer safeguards to telecommunications service providers through ILEC (incumbent local exchange carrier) tariffs and as a condition of CLEC (competitive local exchange carrier) forbearance.

## Increasing Competitive Neutrality

It is evident to the Panel that it is not simply tariff filings that generate the need for — or the costs associated with — regulation. In the regime contemplated by the recommendations in this report, the tariff-filing process will require reduced regulatory resources of the CRTC, as greater resources are dedicated to issues regarding settlement of competitive disputes and detariffing of related matters. Similarly, the activities of the newly created TCT will focus on issues regarding the existence or absence of significant market power, alleged anti-competitive conduct and the identification of essential facilities, rather than tariff-filing matters.

With increasing competition in telecommunications markets, the Panel believes it is no longer good regulatory policy for only one group of market participants to be required to pay for the costs associated with regulation. The Panel notes that the CRTC itself reached a similar type of conclusion in 2000, when it broadened the base for payment of contribution subsidies to local residential service in high-cost areas to require a *pro rata* payment from all telecommunications service providers, based on all Canadian telecommunications services revenues, rather than limiting it to a contribution based solely on long distance revenues.[85]

The Panel recommends amending the *Telecommunications Fees Regulations*, 1995 to make all telecommunications service providers liable for a share of the cost of the CRTC's telecommunications activity. To minimize any additional regulatory workload, the Panel recommends that the share of each telecommunications service provider should be calculated in the same manner as is used for the determination of liability-to-pay contribution. This approach would exempt all telecommunications service providers with Canadian telecommunications service revenues below $10 million from the obligation to pay toward this cost recovery.

For all of the reasons noted above, the Panel also believes the costs of the TCT should be paid for by the telecommunications industry in the same *pro rata* manner. Given the transitional status of the TCT mechanism, the TCT's costs could be assessed based on an estimate of annual expenses presented to Parliament on behalf of the TCT by the CRTC. The TCT should make recommendations regarding the amounts required to perform its functions and obligations. Payments of a TCT levy could be made simultaneously with payments made in respect of the CRTC's telecommunications activity.

**Recommendation 9-31**

**The *Telecommunications Fees Regulations*, 1995 should be amended so all telecommunications service providers are required to pay a *pro rata* share of the annual costs of CRTC and TCT telecommunications activities. Shares should be calculated using the same approach and exemptions as are used under the existing subsidy regime for local residential service in high-cost areas.**

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[85] *Changes to Contribution Regime*, Decision CRTC 2000-745, November 30, 2000.

# 10 Chapter 10
# Implementation

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## An Agenda for Change

The Telecommunications Policy Review Panel has undertaken the first comprehensive review of Canadian telecommunications policy and regulation in over 30 years. In this report, the Panel calls for extensive reform of national telecommunications policy and the regulatory approaches used to implement it. The Panel's recommendations aim to transform regulation of Canada's key telecommunications industry and infrastructure by:

- revitalizing the role of policy making in the telecommunications sector (see particularly Chapters 2 and 9)
- reforming the regulatory framework by replacing the traditional legal framework inherited from railway and public utility regulation with one that relies on market forces to the extent feasible to achieve telecommunications policy objectives, and that also incorporates new safeguards against anti-competitive behaviour closely related to the approaches used in general competition law and policy (Chapters 3 and 4)
- sharpening the focus of technical regulation to improve its effectiveness as well as of social regulation to promote the interests of consumers in today's competitive and increasingly dynamic telecommunications markets (Chapters 5 and 6)
- promoting the use of networked information and communications technologies (ICTs) to increase productivity throughout the economy, improve public services, and ensure that Canadians remain among the most "connected" citizens of the world (Chapters 7 and 8)
- harmonizing, streamlining and modernizing regulatory institutions and their functions in the telecommunications sector (Chapter 9).

The Panel's recommendations are intended to accomplish these reforms. The recommendations are the result of extensive consultations with individual Canadians, telecom sector stakeholders as well as Canadian and international experts, policy makers and regulators. The Panel is impressed with the thoughtfulness and depth of the submissions it has received and the goodwill that lies behind them. It offers its recommendations to the government in the hopes that it will initiate a process to improve Canadian telecommunications policies, and ultimately to enhance the performance of the telecommunications sector and the benefits that the sector brings all Canadians.

In the Panel's view, there is some urgency to implementing a telecommunications reform agenda. Although Canada's regulatory policies and legislative framework generally have served us well in the past, times have clearly changed. As discussed in the report, the telecommunications industry has been transformed from being characterized by a series of monopoly providers of basic telephone and cable TV services to a highly competitive industry building Internet Protocol (IP) platforms to roll out a constantly evolving mix of advanced wireline and wireless services.

Other countries have established new legal and regulatory frameworks that are more attuned to the competitive realities of the global telecommunications market and to the very rapid development and deployment of new technology. Canada's current regime is becoming the exception to the rule, relative to its major trading partners. With telecommunications assuming ever-increasing importance as an enabler of social and economic well-being, Canada must ensure that its policy and regulatory frameworks are conducive to the attainment of our social and economic goals and are not an impediment to them.

Full implementation of the Panel's recommendations will require amendments to Canada's telecommunications laws. The Panel recognizes that the legislative process is not a fast one and that considerable care must be taken in drafting amendments to the existing statutory framework and then debating them in Parliament.

The urgency for reform, on the one hand, and the time constraints of the legislative process, on the other, have led the Panel to consider steps that could be taken under the existing statutory framework, in advance of legislative amendments, in order to begin the reform process at an earlier stage.

The government has a number of tools at its disposal to begin the reform process. While the enactment of new legislation is critical to the institutional reforms recommended by the Panel, as well as to amendment of certain key provisions of the *Telecommunications Act*, other recommendations can be implemented without legislation. Some reforms can be implemented by Order in Council or ministerial decisions, such as changes to government programs and human resources procurement practices, coordination of the work of different government institutions, and the establishment of working groups to advance work on issues that the Panel recommends for further analysis; by requiring the Canadian Radio-television and Telecommunications Commission (CRTC) to report on certain matters pursuant to s. 14 of the *Telecommunications Act;* or by issuing policy directives pursuant to s. 8 of the Act.

To provide the telecommunications industry, regulatory institutions and other stakeholders in the telecommunications sector with a clear understanding of the direction that the government intends to take, the Panel recommends that the government publish a response to the Panel's report, announce the general policy approach it intends to pursue in the telecommunications sector, and map out its intended course of action regarding the Panel's recommendations.

The Panel believes the government's response and related policy announcements will have a significant impact in starting the process of reform, both within the CRTC and the industry. They can also provide the industry and investors with notice of changes in the regulatory regime that are intended to encourage investment in new technologies and facilities.

Use of the government's policy-making process in this manner is wholly consistent with the recommendations in Chapter 9 of this report, which are designed to establish the primacy of government policy to guide the development of the regulatory framework and of regulation in the telecommunications sector. As discussed in Chapter 9, the absence of government policy initiatives over past decades has required the CRTC to step into the vacuum and become the *de facto* policy maker in the telecommunications sector. By making a clear policy announcement in response to the Panel's report, the government can signal its intention to re-establish the primacy of government in telecommunications policy making. This will pave the way for the institutional and legislative changes and, just as important, subsequent changes in the regulatory approaches and the "culture" of regulation. A clear government policy announcement can also significantly reduce the timelines between the issuance of this report and the implementation of any reforms based on it.

With this in mind, the Panel proposes that the government should implement its recommendations in two phases. In the first phase of reform, it should act immediately on recommendations that can be implemented under existing legislation.

Phase 1 would include a number of separate but related initiatives:

- one or more **policy statements** responding to and addressing the recommendations of the report that do not require legislative change to implement, and setting out the government's commitments in the ICT sector
- a **policy direction** to the CRTC under s. 8 of the *Telecommunications Act* addressing broad policy matters that the government wishes the CRTC to begin taking into account immediately
- **government measures** to implement recommended reforms within the government itself, designed to ensure consistency in "smart regulation" within the telecommunications sector and to implement new programs in the ICT and broadband segments
- the establishment of **implementation working groups** to begin the detailed groundwork that will assist in drafting new legislation and other reforms recommended in the report
- an order under s. 14 of the *Telecommunications Act* requiring the **CRTC to issue reports** on issues identified by the Panel in its recommendations.

Concurrently with the initiation of the Phase 1 initiatives, the Panel recommends that the government should begin the process of developing the legislative changes required to implement the remaining recommendations in the second phase of the reform process.

Phase 2 would involve legislative amendments to the statutes that govern the telecommunications sector, in particular the *Telecommunications Act*, the *Radiocommunication Act*, the *Canadian Radio-television and Telecommunications Commission Act*, the *Emergency Preparedness Act* and the *Competition Act*.

Each of the two phases is discussed in greater detail below.

## Phase 1

### Policy Statements

A critical first step in the reform process is for the government to signal to the industry and the regulatory institutions what is its intended course of action on the reforms recommended in the report. The Panel believes such a statement of government policy should include the government's general response to the report and an indication of the broad policy directions that the government intends to pursue in relation to the telecommunications sector. If the Panel's recommended approach to reforming telecommunications policy and regulation is adopted, the government could issue one or more statements addressing the policy-oriented recommendations of the report. These statements would set the overall approach to be followed in the implementation of those recommendations and would serve to put the industry, regulators and investors on notice as to that approach.

### Direction to the CRTC

Section 8 of the *Telecommunications Act* empowers the government to issue to the CRTC "directions of general application on broad policy matters with respect to the Canadian telecommunications policy objectives" that are set out in s. 7 of the Act. Pursuant to para. 47.(b) of the Act, the CRTC is required to exercise its powers and perform its duties under the *Telecommunications Act* in accordance with any such directions.

The s. 8 power of policy direction is not unfettered. Policy directions must be limited in their subject matter and their specificity. They must be confined to "broad policy matters with respect to the Canadian telecommunications policy objectives" and must be "of general application." The Governor-in-Council cannot use the power of direction to alter the Canadian telecommunications policy objectives or other legislated provisions. However, by empowering the Governor-in-Council to issue policy directions to the CRTC, within these parameters, Parliament clearly envisaged a role for the government in directing the regulator on how to interpret the policy objectives in s. 7. This view is buttressed by the wording of s. 47 of the Act.

In considering the extent to which the power of direction can be used to implement the recommendations made in this report, the Panel has focused in particular on para. 7.(f), which states that an objective of Canadian telecommunications policy is "to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective"; and para. 7.(c), which sets out as an objective "to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications."

The manner in which these two objectives are interpreted is key to implementation of many of the regulatory reforms recommended in this report. The fact that these objectives require clarification is demonstrated by the amount of attention they received in the Panel's public consultations and by the wide disparity of interpretations given to them by parties advocating diametrically opposing views on their interpretation. Similarly conflicting interpretations are frequently presented in submissions made as part of regulatory proceedings of the CRTC.

The two objectives have been used to justify both a *laissez-faire* approach to economic regulation and an interventionist approach, to support the increased regulation of essential facilities and the deregulation of them, as well as to require proactive measures to increase competition and to allow market forces to work unimpeded by regulation. These two objectives also provide the basis for ongoing debate over whether competition is a policy objective in its own right or a means to achieving policy objectives.

As discussed in Chapters 2 and 3, the Panel is recommending a separation of policy objectives from the consideration of the means that can be used to achieve them, a greater reliance on market forces as the means of achieving those policy objectives, and reliance on regulation only when market forces are unlikely to achieve a telecommunications policy objective within a reasonable time frame. The Panel is also recommending a decreased reliance on mandated wholesale rates for essential facilities and a decreased use of *ex ante* regulation of retail telecommunications market prices and service conditions.

The government can begin to implement these reforms through a policy direction.

The Panel sets out below the text of a draft policy direction that it considers would satisfy the requirements of s. 8 and advance implementation of a number of key recommendations in the report.

**_Proposed Text of Policy Direction_**

"In exercising its powers and performing its duties under the *Telecommunications Act*, the Canadian Radio-television and Telecommunications Commission shall interpret and implement the Canadian telecommunications policy objectives set out in section 7, and particularly in paragraphs 7.(c) and (f), in accordance with the following principles:

(a) Market forces shall be relied upon to the maximum extent feasible as the means of achieving the telecommunications policy objectives.

(b) Regulatory measures shall be applied only where

  (i) market forces are unlikely to achieve a telecommunications policy objective within a reasonable time frame, and

  (ii) the costs of such measures do not outweigh the benefits.

(c) Regulatory measures shall be efficient and proportionate to their purpose and shall interfere with the operation of competitive market forces to the minimum extent necessary to meet the policy objectives.

(d) When it is determined that regulatory measures are required, they shall specify the telecommunications policy objective that is advanced by the measure and demonstrate compliance with the foregoing principles.

(e) Economic regulation shall apply only if there is a finding of significant market power in respect of a telecommunications service or class of services provided by a Canadian carrier. The Canadian Radio-television and Telecommunications Commission should continuously review telecommunications markets on a timely basis to ascertain the appropriate degree of regulation or forbearance under section 34 of the *Telecommunications Act*.

> (f) To provide increased incentives for innovation, investment in and construction of competing telecommunications network facilities, mandated access to wholesale services shall be limited to essential services provided by a carrier with significant market power, and shall be priced on a basis that encourages investment and innovation in network infrastructure.
>
> (g) Economic regulation, when required, shall neither deter efficient competitive entry nor promote inefficient entry.
>
> (h) Interconnection arrangements and access regimes, including access to buildings, in-building wiring and support structures, shall, to the greatest extent possible, be technologically and competitively neutral; to enable competition from new technologies and not to artificially favour either facilities-based or non-facilities-based carriers or resellers.
>
> (i) Regulatory measures designed to advance non-economic objectives of regulation shall, to the greatest extent possible, be implemented in a symmetrical and competitively neutral manner.
>
> (j) To ensure that regulation, when required, is efficient, the Canadian Radio-television and Telecommunications Commission shall maintain and publish service performance standards for the various forms of regulatory proceedings it undertakes.
>
> (k) To ensure greater efficiency in regulation, *ex ante* tariff regulation shall be used only when less intrusive and less onerous tariff approval mechanisms, such as price cap mechanisms, are determined to be ineffective means to satisfy the objectives of economic regulation.
>
> (l) The Canadian Radio-television and Telecommunications Commission shall continue to explore and implement new approaches for streamlining its regulatory process to enhance the efficiency and effectiveness of regulation."

Consistent with its recommendation in Chapter 9, the Panel suggests that the proposed text of any policy direction to the CRTC should be set out in a government public notice, and the public should be provided with an opportunity to comment on it before it is implemented.

### Government Policies and Programs

In addition to proposing reforms to the institutions responsible for regulating telecommunications in Canada and to the governing legislation, the Panel recommends a series of reforms designed to improve the way in which the government conducts itself in the telecommunications and ICT sectors. These measures include ensuring that government policies and programs are consistent with the principles of "smart regulation" being applied to other institutions and that all parts of the telecommunications policy and regulatory framework are coordinated to achieve the same objectives. It is within the government's power to initiate reforms in these areas in advance of legislation that changes the institutional structure. The following recommendations could be initiated in advance of legislation:

- Recommendations 2-2 to 2-5 respecting guidelines for government measures affecting the telecommunications sector, and for coordinating the work of government departments, agencies and programs in a manner that achieves Canadian telecommunications policy objectives
- Recommendation 5-7 respecting the availability of spectrum for expansion of broadband services to unserved regions of Canada

- Recommendation 5-11 respecting a review of programs related to telecommunications equipment and devices by Industry Canada
- Recommendations 7-1 to 7-3 respecting a national ICT policy and adoption strategy
- Recommendation 8-4 respecting establishment of the U-CAN broadband access program
- Recommendation 9-1 respecting a review of the *Department of Industry Act*
- Recommendation 9-2 respecting the initiation of a new program to fund public policy research in the telecommunications and ICT sectors.

### Establishment of Working Groups

The Panel recommends the establishment of a number of working groups to undertake some of the detailed work required to implement its recommendations. In the Panel's view, this work should start as soon as the government decides to pursue the relevant reforms and policy initiatives. The following recommendations refer to the need for such working groups:

- Recommendation 3-15 respecting guidelines to adapt competition law principles to the telecommunications sector (for use by the Telecommunications Competition Tribunal and, before its establishment, the CRTC)
- Recommendation 3-21 respecting the development of a definition of "essential services" in current Canadian telecommunications markets
- Recommendation 5-9 regarding the need for the CRTC and Industry Canada to plan for the transition of spectrum management and licensing to the CRTC
- Recommendation 5-9 respecting a review by Industry Canada of its terminal equipment certification program
- Recommendation 9-3(b) regarding cooperation between the CRTC, Statistics Canada and Industry Canada in developing a new set of data requirements that meets their respective needs.

### Reports

The government could use its authority pursuant to s. 14 of the *Telecommunications Act* to require the CRTC to report on the following issues identified in the report:

- Recommendation 3-3 respecting an appropriate costing methodology for wholesale access services and essential facilities
- Recommendation 9-3(a) concerning continuing reports on the status of competition in Canadian telecommunications markets and on the deployment and accessibility of advanced telecommunications infrastructure
- Recommendation 9-3(c) respecting a review of what additional sector data are required to carry out the CRTC's regulatory mandate and how best to publish them in a timely manner.

## Phase 2

As discussed earlier in this chapter, Phase 2 involves the development and implementation of legislative amendments required to implement the Panel's recommendations.

## Maintaining a Unified Policy Vision

The Panel believes a two-phased approach to implementing its recommendations is the most practical way of moving forward. It also believes the three main issues that it was asked to address — regarding the Canadian regulatory framework, ICT adoption and broadband deployment — should be seen as integral parts of Canada's overall telecommunications policy.

Different kinds of measures are needed to achieve the objectives the Panel recommends in different areas of telecommunications policy. Reforming the regulatory framework requires significant legislative change, and this will take some time to implement. Work to improve connectivity and promote the use of ICTs, on the other hand, can begin immediately through the U-CAN program and under the leadership of the Minister of Industry and the proposed National ICT Advisory Council.

In developing a phased implementation strategy along the lines we propose, the Panel urges the government not to lose sight of the fact that it is dealing with different aspects of what the Panel believes should be a harmonized national ICT policy.

To connect Canadians and use networked ICTs to maximum advantage throughout our economy and society, Canada needs a modern regulatory framework that facilitates the growth of a healthy, competitive, telecommunications industry capable of deploying advanced networks and providing innovative products and services — equal to or better than those available in other countries. Demand for and "smart adoption" of these networks, products and services in turn can be increased by policies and strategies aimed at promoting access to ICTs and their effective use.

Going forward, the Panel believes the federal government should take a broad view of the scope of telecommunications and related ICT policies, and ensure that the fundamental objectives and principles recommended in this report are applied consistently in all policy domains. Thus, whether the issue is regulatory reform, broadband access or ICT adoption, Canada's telecommunications policy should aim to maximize reliance on competitive market forces, while protecting consumers and promoting social inclusion through well-targeted, competitively neutral government and regulatory measures.

Maintaining a unified vision of this kind will ensure an effective, coordinated approach to telecommunications policy that benefits consumers and industry, citizens and communities. It will help Canada regain and retain its position as a leader in the development and use of telecommunications to improve economic and social welfare.

# Afterword

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The mandate of the Telecommunications Policy Review Panel was to recommend a modern policy and regulatory framework to ensure that Canada continues to have a strong, internationally competitive telecommunications industry that delivers world-class products and services at affordable prices for the economic and social benefit of all Canadians. In conducting its review, the Panel was asked to focus on three key areas: telecommunications regulation, access to broadband, and information and communications technology (ICT) adoption. In this final report, the Panel recommends the actions required in each of these areas to meet the overall objectives of the review.

In this Afterword, the Panel deals with two related issues that were not specifically made part of its mandate, but that significantly affect the future of the Canadian telecommunications industry:

- the implications of the technology and market trends that are transforming the telecommunications industry for Canada's broadcasting policy and regulatory framework
- the current policies that restrict foreign ownership and control of telecommunications common carriers and broadcast distribution undertakings.

The technology and market trends discussed in Chapter 1 affect both the telecommunications and broadcasting industries, and many of the major players in the Canadian telecommunications industry, such as BCE Inc., Rogers Communications Inc., Shaw Communications Inc. and Vidéotron ltée, are also major players in the Canadian broadcasting industry. The continuing convergence of Canada's communications industries, with former "cable TV" companies and "telephone companies" both offering a similar range of voice, data and video services on broadband Internet Protocol (IP) platforms, will significantly increase competition between the telecommunications and broadcasting industries. The entry of wireless companies into the video distribution business will intensify this competition.

This convergence of telecommunications and broadcasting markets brings into question the continued viability of maintaining two separate policy and regulatory frameworks, one for telecommunications common carriers like the incumbent telephone companies and one for their competitors in most of the same markets, the cable telecommunications companies.

The second issue relates to the restrictions on foreign ownership and control of Canadian telecommunications carriers. The policy debates on this issue generally involve different considerations from the issue of restrictions on foreign ownership or control of Canadian broadcasters. In the case of Canadian carriers, the policy considerations include increasing competition, economic efficiency, access to capital and technology, as well as concerns about Canadian employment, control of head office functions and national security. The broadcasting ownership debates focus on issues relating to creation and distribution of Canadian content, access to Canadian sources of information and cultural sovereignty.

Over the past years, the networks of both Canadian telecommunications carriers and broadcasting distribution undertakings have increasingly been used to provide both broadcasting services and other telecommunications services. Thus, questions of whether to liberalize restrictions against foreign ownership or control of these facilities inevitably bring into play two very different sets of policy considerations and interests.

Although the Panel was not specifically asked to provide recommendations on either of these issues, there are clear linkages between them and the objectives of the telecommunications policy review. These linkages have led the Panel to use this Afterword to suggest possible future approaches that the government might use to resolve the long-standing policy debates over the issues.

## Market Convergence

Many of the major trends revolutionizing the telecommunications industry, which are identified in Chapter 1 and discussed throughout this report, apply equally to the broadcasting industry. These trends include:

- the shift to IP-based communications networks
- the greater reliance on open network architectures
- the convergence of information and communications technologies and content industries.

The effect of these trends is particularly noticeable in the cable industry, which provides both telecommunications and broadcasting services. However, they are beginning to affect traditional broadcasters and other producers of audio and video content as well. Not surprisingly, therefore, a number of submissions to the Panel raised issues about the relationship between telecommunications and broadcasting policy and regulation.

Submissions from various parties pointed to the significant challenges these trends pose for the current Canadian system of "parallel regulation," which is based on largely separate policy, legislative and regulatory frameworks for the broadcasting and telecommunications industries.

One major Canadian broadcasting company stated, "it will become increasingly difficult for regulators to ensure that a more diffuse distribution architecture can effectively deliver on the current obligations extracted from Broadcasting Distribution Undertakings [BDUs] under the existing regulatory framework."[1] Some representatives of the cable industry suggested that the increasing convergence of the telecommunications and broadcasting industries should lead the Panel to recommend the increased harmonization of Canadian telecommunications and broadcasting policy and regulation. A number of parties submitted that Canadian telecommunications and broadcasting regulatory frameworks should take greater account of copyright, given the increased importance of all forms of content transmitted over telecommunications and broadcasting networks.

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[1] See Astral Media Inc. submission of August 15, 2005, p. 8. Available online at: http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/vwapj/Astral_Media_-_Submission.pdf/$FILE/Astral_Media_-_Submission.pdf

There were a variety of other perspectives on how, if at all, the Panel should deal with the interface of broadcasting and telecommunications policy and regulation. Some parties, including representatives of Canadian audiovisual unions and some broadcasting companies, submitted that the Panel should limit its recommendations to telecommunications policy and should not deal with broadcasting policy matters.

The Panel has decided that, for a number of reasons, it would be inappropriate for it to make specific recommendations to change the Canadian broadcasting policy and regulatory framework. It was not part of the Panel's mandate to address these issues. Broadcasting policy involves a complex interplay of cultural, industrial and trade issues that the Panel has not studied in detail. In addition, parties affected by such issues would feel justifiably concerned if the Panel made specific recommendations on matters that affected their interests, without a full review of the implications of such recommendations — and a full opportunity to make submissions relevant to them.

At the same time, the Panel recognizes that the changing environment is increasing the cross-impacts and the tensions between Canada's existing telecommunications and broadcasting policies. These changes in the technological and market environment threaten to undermine the current system of parallel regulation, particularly as it applies to the former "telephone" and "cable TV" companies that are major players in the new converged telecommunications industry. The changes also threaten to undermine the current policies and regulatory measures that support and promote the development of Canadian broadcasting content. The Panel considers it important for Canadian economic competitiveness and cultural sovereignty, as well as for the integrity of the Canadian regulatory system, to ensure that measures to promote development and distribution of Canadian content are effective — and realistic — given the technological and market environment in which they operate.

The Panel believes the Government of Canada should not wait until the viability of the current broadcasting regulatory framework is undermined by technology and market changes. The government should act now to review its broadcasting policies to reflect the obvious changes occurring in the broadcasting environment.

### Changes in the Broadcasting Environment

While there is a vigorous debate about the speed of change, no one can deny that the Canadian broadcasting industry is facing revolutionary technological and market changes. The IP revolution will soon make it possible for consumers to access much of the audio and video content they have traditionally obtained from Canadian broadcasters over a variety of distribution networks — some subject to current broadcasting regulation, others not.

Canadian regulators and policy makers are justifiably proud of their leadership role in creating a space for diverse national broadcasting content, in the shadow of the dominant U.S.-based North American video production and distribution industries. Other countries are increasingly cognizant of the social, cultural, educational and economic benefits of producing their own electronic content instead of simply importing it from the market leader in broadcasting and Internet content — the United States.[2] There is no reason why Canada, with its diverse and creative population, should not play a leading role in developing new electronic communications content for global communications networks.

However, changes in data, video and audio distribution technologies and markets raise increasing concerns about whether the current broadcasting policy approaches will be the best way, or even a viable way, to pursue such leadership in the future. In the Panel's view, these changes call for a major reassessment of the Canadian broadcasting policy and regulatory framework.

The current broadcasting policy and regulatory framework was developed in response to the prospect of domination of the Canadian broadcasting markets by U.S.-based broadcasting and video distribution networks. In the face of a flood of attractive and low-priced broadcast programming content from the U.S., promotion of Canadian programming became a key tenet of Canadian broadcasting policy — particularly in English-speaking Canada. Promoters of Canadian programming content pointed out that, without regulatory intervention, Canadian radio and television broadcasters and BDUs could distribute high-quality, U.S.-produced TV programs, particularly drama programs, for one-tenth or less the cost of producing domestic content. Consequently, there seemed to be little financial incentive for privately owned Canadian broadcasters and BDUs to distribute Canadian programming in genres such as drama or children's programming.

These and similar concerns led to strong regulatory intervention in Canadian broadcasting content distribution markets. In the 1970s, under the chairmanship of Pierre Juneau, the CRTC introduced minimum quotas for airplay of Canadian music on radio stations.[3] That intervention is widely credited with creating the modern Canadian music industry. Since that time, the CRTC has introduced a range of different broadcast distribution rules, moving beyond radio to video, and beyond quotas to measures such as those requiring priority carriage of Canadian signals, tiering and linking of cable channels, simultaneous substitution of ads on U.S.-carried cable channels, etc.

The current rules governing distribution of programs by off-air broadcasters and distribution of channels by cable, satellite and other BDUs have provided an effective means of supporting production and distribution of Canadian content. Broadcasters and BDUs were, and continue to be, licensed subject to conditions requiring preferential carriage, quotas and direct monetary contributions to support the production and distribution of Canadian programming.

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[2] Canada took a leadership role in the development of the *Convention on the Protection and Promotion of Cultural Expressions*, which was adopted by UNESCO's General Conference in October 2005. See UNESCO,"Canada Becomes the First State to Ratify the Convention on the Protection and Promotion of the Diversity of Cultural Expressions," December 23, 2005. Available online at: **http://portal.unesco.org/culture/en/ev.php-URL_ID=29555&URL_DO=DO_TOPIC&URL_SECTION=201.html**

[3] Canada's national music awards continue to be called "Junos" in honour of Mr. Juneau's regulatory initiatives.

However, these rules are rooted in an era when the broadcasting and telecommunications sectors occupied separate market niches with different service providers. The broadcasting regulatory framework, as embedded in the *Broadcasting Act*, was conceived in an era when channels for distribution of broadcasting content were limited, and discrete networks were used for the distribution of radio, television and telecommunications. Broadcast programs could be received by the public only on devices dedicated to that purpose, primarily radio and television sets.

Technology and markets are clearly eroding the distinction between the broadcasting and telecommunications industries, as well as the distinctions between the types of devices used for both purposes. Cable TV networks, formerly dedicated to "broadcast distribution," are increasingly being used to provide high-speed Internet access and other broadband telecommunications services, including voice over Internet Protocol (VoIP) based telephone services. "Telephone" networks are increasingly used to transmit high-speed data and video content, including content previously distributed on network television. Today, laptop computers, iPods, cell phones, BlackBerries, PDAs, and a range of other devices can be used interchangeably for broadcasting, data, voice and other telecommunications purposes.

More importantly, the number of channels for distributing broadcasting, or "electronic" content, is no longer limited. We have gone well beyond the 100-channel universe, toward a marketplace where the concepts of "channels" and "circuits" seem outdated. The widespread digitization of cable, satellite, wireline and wireless networks, combined with IP-based infrastructure supporting all forms of communication and content, has irrevocably changed broadcasting distribution markets.

More and more in today's world, there is no longer a shortage of channels, and technology is enabling direct access to audio and video content of all kinds in a manner that defies the traditional notion of a radio station or TV channel. Converged broadband cable, wireline, wireless and satellite networks deliver everything from voice telephony to broadcasting and the Internet. All forms of content are increasingly available on demand on IP-based platforms running over a variety of different regulated and unregulated networks.

### Asymmetrical Regulation of a Converged Industry

Maintaining traditional broadcasting-type restrictions on the distribution of video or audio content over converged networks will become increasingly problematic. CRTC-regulated broadcasters and BDUs are understandably concerned about competition from unregulated services.

Concerns have also been expressed about the potential application of broadcasting-type content rules to online services, as well as about the impact such rules would have on the development of telecommunications network infrastructure, and the adoption and take-up of online services in Canada.

Strict application of the rules in the current *Broadcasting Act* could significantly impact telecommunications networks and online services. Producers are already delivering audio and video content via websites and even cell phones. Radio stations and music are widely available on the Internet. Many businesses and individuals make audio and video content available to the public from websites or through email, providing information, assistance and even entertainment to clients, friends or open user lists.

Absent the CRTC's *Exemption Order for New Media Broadcasting Undertakings*,[4] the carriers, Internet service providers (ISPs), and other businesses and individuals involved in these activities would fall within the restrictions on content distribution imposed under the *Broadcasting Act*. The CRTC's exemption order provided timely clarity and certainty, which has helped foster the growth of advanced online services in Canada. However, recent calls for review of the exemption in response to the marketing of new services have started to undermine that certainty and clarity. Some parties have suggested that the CRTC should extend broadcasting regulation to new services that compete with those currently regulated under the *Broadcasting Act*. Conversely, others have suggested that the better course would be to start adapting the regulatory framework to enable currently regulated broadcasters to better compete in the new IP network environment.

At the same time as the benefits of the current form of broadcasting regulation are being reduced as its effectiveness erodes in the face of technological change, it must be recognized that the costs may be increasing. Broadcasting regulation can impose costs on the industry and on Canadian society and the economy as a whole. It can impede competition in broadband telecommunications markets, and impose artificial constraints on the capacity and utilization of BDU networks. For example, BDUs must reserve capacity and implement measures to prioritize and tier the delivery of various channels, to promote Canadian services. Such constraints inevitably affect the capacity of network operators to innovate and deploy the most efficient types of broadband networks. As more network operators add broadcasting distribution services, such rules will apply to an increasing number of networks. Yet, with the emergence of broadband IP networks, such measures are likely to become increasingly ineffective.

Although the constraints of broadcasting regulation apply to all forms of BDUs, they are arguably borne disproportionately by the cable industry. Cable telecommunications BDUs play a central role in the provision of advanced broadband telecommunications services in Canada. Their early introduction of cable modem services propelled Canada into its leadership position in the global race to deploy broadband access networks. Their current rollout of increasingly functional IP-based platforms is similarly important to the development of a competitive Canadian ICT industry. In the long run, Canada may lose more by restrictive regulation of cable telecommunications networks to advance a declining form of broadcast content delivery than it could gain by embracing the full potential of new cable-based IP platforms.

The Panel believes, in order to realize the full potential of broadband services in Canada, the asymmetry between the broadcasting and telecommunications regulatory frameworks should be examined.

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[4] Public Notice CRTC 1999-197, December 17, 1999.

### International Trends

An increasing number of countries are developing integrated regulatory frameworks that take into account the convergence of telecommunications and broadcasting distribution from consumer, technological and market perspectives. Some countries, such as those in the European Union, are severing the policy link between regulation of broadcasting content and regulation of the telecommunications or "carriage" services used to provide access to broadcasting content.

European telecommunications and spectrum laws increasingly provide the basis for regulating all telecommunications networks — or "electronic communications networks," as they are now called. Under European Commission policy, no distinction is made between the regulation of telecommunications networks that originated as telephone networks and those that originated as cable TV networks. Separate rules govern production and distribution of broadcasting content, but these are applied equally to all telecommunications networks.

This form of more symmetrical or "technology neutral" regulation should allow network operators the freedom to invest in and develop the IP network infrastructure in the most efficient and effective way possible in response to market demand. At the same time, it should enable policies dedicated to the promotion of video content to focus on the measures best suited to the new network environment.[5]

### Conclusions and Proposed Approach

Since the Panel was not asked to review Canada's broadcasting policy, it would be inappropriate for it to make specific recommendations for changes to broadcasting or regulation.

While the Panel recognizes the increasingly close links between telecommunications and broadcasting policy, it believes substantial progress can be made to improve Canada's telecommunications policy and regulatory framework without directly affecting broadcasting policy or regulation. The Panel does not believe implementation of its recommendations for telecommunications reform should be delayed to await a review of broadcasting policy.

However, the Panel's work over the past ten months has persuaded it of the need for a comprehensive review of Canada's broadcasting policy and regulatory framework by an independent group of experts. The world has changed significantly since the last major reviews of broadcasting policy,[6] and another review should be undertaken before technological and market changes undermine the current policy and regulatory framework.

The Panel believes this review should, at a minimum, consider the following issues.

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[5] In 2002, the OECD suggested that Canada should move toward a more converged environment. See OECD, *Regulatory Reform in Canada: from Transition to New Regulation Challenges* (Paris: 2002). Available online at: **http://www.oecd.org/dataoecd/48/28/1960562.pdf**

[6] For example, at the time of the last comprehensive review of broadcasting policy, completed in September 1986 by the Task Force on Broadcasting Policy, chaired by Gerald Caplan and Florian Sauvageau, few if any Canadians had heard of the World Wide Web or the "Internet." Twenty years ago, almost no one foresaw the potential for IP networks to deliver video and audio broadcasting in competition with off-air and cable broadcasters.

### Legislative Framework — Separating Carriage and Content

Canada was a global leader in recognizing the trend toward convergence of the telecommunications and broadcasting industries. In 1976, it established one of the earlier "converged" regulatory agencies, the "new CRTC" (Canadian Radio-television and Telecommunications Commission), which was given regulatory authority over the telephone, private line and satellite communications industries, adding to the authority of the "old CRTC" (Canadian Radio and Television Commission), which regulated the television, radio and cable industries. However, Canada has maintained "two solitudes" in the laws that govern the carriage of telecommunications and broadcasting content. The *Telecommunications Act* deals with the provision of telecommunications services, including Internet access services by "common carriers." The *Broadcasting Act* deals with the provision of one type of telecommunications service — namely the distribution of broadcasting content, by stations, networks and BDUs, primarily those in the cable industry. While the cable telecommunications industry is subject to the *Telecommunications Act* for certain non-broadcasting "carriage" activities, such as the provision of Internet access services, its carriage activities and its network infrastructure remain substantially regulated under the *Broadcasting Act* as well. The different treatment of telecommunications and broadcasting carriage functions has persisted, although it is increasingly difficult, if not impossible, to distinguish between the two.

Other member countries of the Organisation for Economic Co-operation and Development (OECD)[7] as well as developing nations have taken steps to harmonize their legislative frameworks for telecommunications and broadcasting — while separating carriage and content rules. The U.S. has had a single communications law for both industries since 1934.[8] The member countries of the European Union have moved well along the way to implementing a converged regulatory approach to telecommunications "carriage" services provided by telecommunications common carriers and cable networks.

The EU's 2002 Framework Directive[9] for electronic communications networks does not differentiate among types of networks or technologies, except that networks making use of radiocommunications remain subject to spectrum licensing requirements. Because of its technological neutrality, and the use of the broadly defined terms "electronic communications networks" and "electronic communications services," the new framework is consistent with technological and market convergence, particularly between conventional public telecommunications networks and cable television distribution networks.

The EU's 2002 Framework Directive deals with "carriage" issues. A separate EU directive deals with "content." Broadcasting or audiovisual programming policy for the EU is the subject of the "Television Without Frontiers Directive."[10]

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[7] We note that a recent OECD report (OECD 2002, p. 49) suggests, "There is a scope for the government to further review developments in convergence between telecommunication and broadcasting, in particular as regards merging legal frameworks to ensure that carriage regulation comes within the scope of a single regulatory framework."

[8] The *Communications Act* of 1934 deals with telecommunications and cable undertakings in different parts or "Titles" of the Act, but recently the FCC has taken steps to adopt a more consistent and competitively neutral approach to regulatory treatment of both industries. The FCC recently removed the requirement for the resale of DSL lines in order to put these providers on an equal footing with cable-based services. See FCC, *"FCC Eliminates Mandated Sharing Requirement on Incumbents Wireline Broadband Internet Access Services,"* August 5, 2005. Available online at: **http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-260433A1.pdf**

[9] Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services, March 7, 2002.

[10] Council Directive 89/552/EEC of October 3, 1989 "on the coordination of certain provisions laid down by Law, Regulation or Administrative Action in Member States concerning the pursuit of television broadcasting activities."

This trend toward convergence of the policies and laws governing "carriage" of telecommunications and broadcasting, and establishment of a separate set of rules to promote audiovisual content, should be considered in any review of Canadian broadcasting policy. Such a review should consider the following issues:

- the merits of adopting unified legislation to deal in a consistent and non-discriminatory manner with all forms of "telecommunications"; that is, electronic communications "carriage" services, whether routed over the networks of former telephone, cable TV, satellite, terrestrial wireless or other facilities
- establishment of "content rules" that are clearly separate from but compatible with the unified telecommunications legislation, to deal with promotion of Canadian content services over all forms of electronic "carriage" networks
- updating the content rules to develop more targeted and effective means of promoting the production and distribution of Canadian content in light of the significant technological and market changes currently under way, especially the transition of BDUs, telecommunications common carriers and wireless telecommunications service providers to multi-service IP platforms.

### Policy-making Framework — Developing a Consistent Approach

The Panel believes it is time to review the relationship between the federal government's policy-making frameworks for broadcasting and telecommunications. As with regulatory convergence, Canada was an early leader in convergence of policy making. Canada established a unified Department of Communications (DOC) in the late 1960s with a mandate to develop policies for telecommunications, broadcasting and other aspects of wired and wireless communications. The DOC was abolished in 1993 as part of a general reorganization and reduction in the number of government departments. The DOC's telecommunications policy-making functions were assigned to Industry Canada, and its broadcasting policy-making functions went to the Department of Canadian Heritage.

Since that time, these two departments have operated, far more than they should, as "two solitudes" — with often conflicting policy agendas. This complete separation of policy-making functions for broadcasting and telecommunications does not seem to be best suited to advancing the broader Canadian objective of becoming leaders in all areas of ICTs.[11] In this context, the Panel believes the review of Canadian broadcasting policy should include the following issues:

- The advantages and disadvantages of establishing a "converged" policy-making role to cover telecommunications, broadcasting, and other aspects of ICT policy should be examined.

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[11] A recent OECD report (OECD 2002, p.12) notes that the CRTC reports to Parliament through the Minister of Canadian Heritage (the Ministry responsible for broadcasting policy). The report notes, "This Department is not responsible for economic regulation but for cultural policy so that it is not evident that this is the best way for the CRTC to report to Parliament."

- Given the importance of ICTs to the future of Canadian prosperity and culture, consideration should be given to assigning this converged policy-making role to a separate new "Department of Information and Communications Technologies." Such a department could become the unified centre, within the Government of Canada, for all major policy making and programs related to building and maintaining Canada's leadership in ICTs. Alternatively, the unified policy-making function could be assigned to an existing department, such as Industry Canada or Canadian Heritage. In any event, the function should be coordinated with that of the National ICT Adoption Centre recommended in Chapter 7 of this report.

### Regulatory Framework — Recognizing Convergence

While the CRTC has had authority to regulate both the telecommunications and broadcasting industries since 1976, it has done so under two completely separate mandates, set out in broadcasting and telecommunications legislation. The Commission staff responsible for broadcasting and telecommunications regulation have largely worked in separate branches, with little day-to-day contact. Commissioners have had somewhat greater exposure to both broadcasting and telecommunications issues, but most commissioners, other than the chair and vice chairs, have traditionally focused on one industry and have relatively little depth of experience in the operations of the other.

At the same time, neither "branch" of the Commission has developed any real expertise in dealing with the intellectual property issues that are becoming increasingly important in regulation related to content provided over both broadcasting and telecommunications networks, especially over the Internet and other IP-based platforms.

In December 2005, the Commission announced a staff reorganization, aimed in part at increasing the coordination of its telecommunications and broadcasting regulatory mandates. The Panel recognizes the benefits of this reorganization but considers that there may be advantages in moving further. Accordingly, the proposed review of Canadian broadcasting policy should examine the following issues:

- further reorganization of the CRTC to develop an increased capacity to deal with both the broadcasting, telecommunications and broader ICT industry implications of decisions related to its "broadcasting" and "telecommunications" mandates
- better coordination of the copyright-related functions of government with its ICT policies and regulations, including a consideration of possible consolidation of the regulatory functions carried out by the Copyright Board with the communications regulatory functions of the CRTC.

## Foreign Ownership

One of the new objectives of Canadian telecommunications policy set out in the 1993 *Telecommunications Act* is to "promote the ownership and control of Canadian carriers by Canadians." The Act provides that non-Canadians shall not control any telecommunications common carrier that owns or operates transmission facilities. It also limits holdings by non-Canadians to 20 percent of the voting shares in an operating company and 33⅓ percent in a holding company.

### Foreign Investment Rules in the Canadian Telecommunications Sector

The 1987 Policy Framework for Telecommunications in Canada, which first established foreign investment rules for telecommunications common carriers, was given the force of law in the 1993 *Telecommunications Act*. Section 16 of the Act requires that, in order to be eligible to operate in Canada, a telecommunications common carrier must be a "Canadian-owned and controlled corporation incorporated or continued under the laws of Canada or a province." Subsection 16.(3) of the Act establishes the following Canadian ownership and control requirements for corporations that are Canadian carriers:

- not less than 80 percent of the members of the board of directors of the corporation must be individual Canadians
- Canadians must beneficially own, directly or indirectly, in the aggregate and otherwise than by way of security only, not less than 80 percent of the corporation's voting shares issued and outstanding
- the corporation is not otherwise controlled by persons that are not Canadians.

The *Canadian Telecommunications Common Carrier Ownership and Control Regulations* of 1994 set the minimum Canadian ownership level for ownership at the holding company level at 66⅔ percent of voting shares. This means that a foreign company that holds 20 percent of the voting shares of a Canadian telecom operating company (direct ownership) can also hold a 33⅓-percent stake in the voting shares of a company that holds the remaining 80 percent voting shares of the Canadian telecommunications operating company (indirect ownership), provided that the foreign company does not exercise control.

Resellers are not subject to Canadian ownership and control requirements. Nor do they apply to satellite earth stations or international submarine cables. Non-Canadian-owned or -controlled satellite operators may also provide services in Canada, if authorized to do so by Industry Canada.

The Panel's approach to considering the ownership and control rules in the telecommunications sector is based on the same principles that have guided it in approaching other telecommunications regulatory issues within its mandate. The Panel believes, at this stage in the evolution of the telecommunications sector, Canada should rely primarily on market forces to achieve its telecommunications policy objectives. Where they are necessary, regulatory measures should be efficient, proportionate to their purpose and interfere with the operation of market forces to the minimum extent necessary to meet their objectives.

## The Policy Debate

Canada is one of a small and declining number of OECD countries that still place explicit foreign investment restrictions on domestic telecommunications service providers.[12] While legal barriers to foreign investment in telecommunications carriers have been lifted in many countries, some still maintain various types of *de facto* controls through ownership of incumbent carriers, public interest tests for foreign investment and other less explicit policies. Nevertheless, it is clear that Canada ranks among the most restrictive countries in the OECD when it comes to explicit restrictions on foreign ownership of voting shares or on other means of controlling domestic telecommunications carriers.

The maintenance of these significant restrictions on foreign investment in Canadian carriers has been the subject of extensive debate since the restrictions were first announced in 1987 and enacted in the 1993 *Telecommunications Act*.

The debate was brought into sharp focus during 2003 when separate reports by two House of Commons committees (the Standing Committee on Industry, Science and Technology and the Standing Committee on Canadian Heritage) reached opposite conclusions on the merits of maintaining the telecommunications foreign investment restrictions.

The Standing Committee on Industry, Science and Technology, in its report *Opening Canadian Communications to the World* (April 2003),[13] recommended that Canadian ownership requirements applicable to telecommunications common carriers should be entirely removed, including the prohibition against foreign control. It also recommended that any changes made to the Canadian ownership and control requirements applicable to telecommunications common carriers should be applied equally to broadcasting distribution undertakings.

The Standing Committee on Canadian Heritage, in its report *Our Cultural Sovereignty: The Second Century of Canadian Broadcasting* (June 2003),[14] recommended that the existing foreign ownership limits for broadcasting and telecommunications should be maintained at current levels. The committee stated that it was convinced "any relaxation of the existing foreign ownership rules in broadcasting or telecommunications could have an adverse affect on the Canadian broadcasting system."

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[12] Most European countries significantly liberalized their telecommunications markets and removed ownership restrictions on foreign investors during the 1990s. Most of those countries that have retained foreign ownership restrictions are located outside Europe, specifically South Korea, Mexico, New Zealand, Australia and Turkey. In the late 1990s, the United States significantly liberalized its foreign ownership rules as they apply to investments by other WTO member countries. See FCC, "Commission Liberalizes Foreign Participation in the U.S. Telecommunications Market," November 25, 1997. Available online at: **http://www.fcc.gov/Bureaus/International/News_Releases/1997/nrin7042.html**

[13] Available online at: **http://www.parl.gc.ca/InfoComDoc/37/2/INST/Studies/Reports/instrp03/03-cov2-e.htm**

[14] Available online at: **http://www.parl.gc.ca/InfoComDoc/37/2/HERI/Studies/Reports/herirp02-e.htm**

Submissions to the Panel took very different and strongly opposing positions on the foreign investment rules. Some strongly opposed any liberalization of the foreign investment rules in the telecommunications sector. Most favoured liberalization, but differed on how this could be best accomplished.

The major concerns about liberalization of the rules related to the potential impact of removing foreign investment restrictions in the telecommunications sector on owners of BDUs who use their facilities to provide telecommunications services as well as broadcasting services. The foreign ownership rules for BDUs are similar (although not identical) to those for telecommunications carriers. Section 3.(1) of the *Broadcasting Act* declares, "the Canadian broadcasting system shall be effectively owned and controlled by Canadians." The foreign ownership rules are set out in a Directive to the CRTC from the Governor-in-Council.[15]

Cable TV companies were originally authorized to construct facilities for the purpose of distributing broadcasting services. In recent years, they have upgraded these facilities so that they can also provide telecommunications services, such as high-speed Internet access and telephone service. However, because these telecommunications services are provided by companies that are licensed as BDUs, the ownership and control of their facilities is subject to the provisions of the *Broadcasting Act*, not the *Telecommunications Act*. BDUs could therefore potentially be disadvantaged if ownership rules were relaxed or abolished under the latter Act, but not under the former.

Because the facilities they own are now used to carry broadcasting services as well as telecommunications services, some of Canada's largest telecommunications common carriers, such as Bell Canada and TELUS Communications Inc. are now licensed as BDUs. Thus, even if the *Telecommunications Act* were amended to permit greater foreign ownership or control of Canadian telecommunications common carriers, these companies would remain subject to the foreign ownership and control provisions of the *Broadcasting Act*. This could potentially disadvantage their shareholders, in terms of the benefits that might result from a transfer of ownership, and weaken their competitive position in the Canadian telecommunications marketplace.

In summary, asymmetrical liberalization of Canada's foreign investment rules — that is, liberalizing foreign investment rules for telecommunications carriers but not BDUs — could leave cable companies and some telecommunications companies in an unfair competitive disadvantage.

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[15] Direction to the CRTC (Ineligibility of Non-Canadians). Available online at: **http://www.crtc.gc.ca/eng/LEGAL/NONCANAD.HTM**

## Benefits and Risks of Liberalization

### General Benefits of Foreign Investment

The economic evidence establishing a positive link between foreign direct investment (FDI) and economic efficiency is generally strong, at least at the economy-wide and industry-wide levels. The economic case for liberalization of FDI is so well established in Canada and other OECD countries that the main area of economic debate is not whether it boosts domestic competitiveness and productivity, but by how much.

FDI can lead to improved economic efficiency in a number of ways. The entry and growth of foreign firms adds to competitive pressures on all firms in a market. Foreign investment often brings financial, technological, human resources, or other assets that domestic firms can access to improve their own performance. FDI can also provide an incentive for domestically owned firms to take initiatives to reduce or eliminate inefficiencies in their business practices and activities in order to compete with foreign-owned entrants. Foreign investment can be a driver of economic efficiency in several ways[16]:

- the "adoption" of foreign technology by domestically owned firms, for example, through (legal) copying or imitation, embodied in inputs purchased from multinational affiliates doing business in the host economy, or technology transfer by scientists, engineers or other employees of multinational affiliates who leave to start their own companies in the host economy or to join a domestically owned company
- the "appropriation" by domestically owned firms of training and other investments in general human capital, where some of that human capital investment is paid for by multinational affiliates but where the affiliates do not recapture their investments, either because the trained employees leave to start their own businesses or go to work for domestically owned firms
- the adoption of strategic management, marketing, human resources management and other managerial functions by domestically owned firms that contribute to efficiency improvements in the latter.

FDI is often associated with a wide range of other economic benefits. However, a direct causal linkage between FDI and these benefits is more difficult to establish, and the extent of the potential benefits is more difficult to measure. Examples include employment generation, the stimulation of positive balance-of-payments effects including import-replacing domestic production, and support for domestic investment (i.e. gross fixed capital formation).[17]

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[16] Stephen Globerman, "Implications of foreign ownership restrictions for the Canadian economy — A Sectoral Analysis," Discussion Paper 7 (Industry Canada: April 1999), pp. 3–4. Available online at: **http://strategis.ic.gc.ca/epic/internet/ineas-aes.nsf/vwapj/dp07e.pdf/$FILE/dp07e.pdf**

[17] See Donald G. McFetridge, "Evaluation of Current Policy Towards Inbound FDI," Paper prepared for CTPL, Trade and Investment Conference, University of Ottawa, November 19, 2004 (Ottawa: Carleton University, Department of Economics, revised December 2004), p. 2. Available online at: **http://www.carleton.ca/ctpl/conferences/documents/EvaluationofCurrentPolicyTowardsInwardFDI-McFetridge.pdf**

### Foreign Investment in the Telecommunications Sector

Much attention has been paid by economists and governments to the economic benefits for host economies of foreign direct investment. However, much of the research has been at the economy-wide level. Less attention has been paid to quantifying the impact of foreign ownership restrictions in the telecommunications sector, particularly in industrialized economies like Canada's. However, the available research does suggest that liberalizing foreign investment rules in telecommunications can help improve economic efficiency and enhance consumer choice in telecommunications markets.

A number of submissions to the Panel cited a 2003 study by Network Research Inc.,[18] which estimated that foreign ownership restrictions increase the cost of capital by at least $1.06 per month per subscriber for an incumbent telephone company and by at least $2.61 per month per subscriber for Canadian cable companies. The Panel notes that the Industry, Science and Technology Committee of the House of Commons concluded, on the basis of this study and anecdotal evidence from industry participants, that Canada's foreign investment rules in the telecommunications sector raise the cost of capital and create a disincentive to investment.

The Panel has also considered evidence that Canada's foreign investment rules impact negatively on the financing structures of Canadian telecommunications common carriers. In limiting a company's ability to raise equity outside Canada, the foreign investment rules provide an incentive for greater reliance on debt than equity capital and for raising a larger share of equity capital in Canada than firms otherwise might do.

A number of telecommunications companies, particularly those in emerging market segments in the wireless telecommunications field, have argued that the existing foreign investment rules are a disincentive for foreign investors to purchase non-voting shares (i.e. shares that are not directly subject to the foreign investment rules) no matter how attractively priced it is. Restrictions on the purchase and sale of voting shares certainly discourages investment by strategic investors. In some circumstances, strategic foreign investors can certainly add value to investments in providers of new services in the telecommunications and technology fields. In this regard, it has been said[19]:

> They [strategic investors] may specialize in high-risk situations or they may be potential suppliers of expertise, technology or reputation. Transfer of strategic assets is complex. A simple royalty agreement is generally insufficient. Agreements to transfer strategic, intangible assets often involve a meaningful (i.e. voting) equity stake. This is not simply a bargaining issue. An agreement of this form is in the mutual interest of both parties in the transaction. The alternative may be either no transfer or one that is much delayed.

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[18] "The Implications of Foreign Ownership Restrictions Upon the Canadian Cable Television Industry" (Oakville, ON: February 12, 2003). Available online at: **http://www.ccta.com/CMFiles/26-03-cunningham50MAA-912004-6046.pdf**

[19] McFetridge, p. 12.

During the hearings of the House of Commons Standing Committee on Industry, Science and Technology and in submissions to the Panel, some Canadian telecommunications firms (including wireless firms) stated that foreign ownership rules have limited their ability to attract strategic investors. There is anecdotal evidence available to support this view, although no directly relevant empirical studies were brought to the Panel's attention.

A number of studies have been conducted on the impact of foreign investment liberalization in the telecommunications sectors in other countries.[20] In general, these studies found positive associations between foreign investment liberalization and the economic performance of the telecommunications sector within the countries examined. For example, an econometric analysis undertaken by the OECD investigated the effects of entry liberalization and privatization on productivity, prices and quality of service in long distance (domestic and international) and mobile cellular telephony services in 23 OECD countries over the 1991–1997 period. The authors of the study[21] concluded:

> Controlling for technology developments and differences in economic structure, panel data estimates show that prospective competition (as proxied by the number of years remaining to liberalisation) and effective competition (as proxied by the share of new entrants or by the number of competitors) both bring about productivity and quality improvements and reduce the prices of all the telecommunications services considered in the analysis.

The Panel regards this and other international studies as providing only circumstantial support in favour of foreign investment liberalization in Canada's telecommunications sector. Very different and often unique circumstances affect the performance of telecommunications markets in different countries, including the state of development of the telecommunications supply sector, regulatory regimes and general economic circumstances. For this reason, the approach to foreign investment rules should take full account of the Canadian regulatory framework for telecommunications service providers, including their regulation under the broadcasting law, as well as the broader Canadian public interest in relation to the future development of the telecommunications system.

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[20] See, for example, Steven Globerman, *Modern Telecommunications Infrastructure and Economic Performance* (2004); Steven Globerman, "Foreign Ownership in Telecommunications: A Policy Perspective," *Telecommunications Policy* 19 (1995): 2–28; Scott J. Savage, Alan Schlottman and Bradley S. Wimmer, *Telecommunications Investment, Liberalization and Economic Growth*, AEI-Brookings Joint Center for Regulatory Studies, Publication 03-30 (Washington, DC: December 2003), available online at: **http://www.aei.brook.edu/admin/authorpdfs/page.php?id=306**; Gary C. Hufbauer and Edward M. Graham, "'No' to Foreign Telecoms Equals 'No' to the New Economy," *International Economics Policy Briefs*, Number 00-7, September 2000, available online at: **http://www.iie.com/publications/pb/pb00_7.pdf**; and Micro-Economic Policy Analysis Branch, "Assessing Economic impact of Foreign Ownership Restrictions in the Telecommunications Services Industry," Industry Canada, Ottawa, July 2001.

[21] Olivier Boylaud and Guiseppe Nicoletti, "Regulation, Market Structure and Performance in Telecommunications," OECD Economic Studies No. 32, 2001/I (OECD Publishing, 2000). Available online at: **http://www.oecd.org/dataoecd/24/33/2736298.pdf**

### Canada's Performance in Wireless and Broadband Markets

In considering the potential benefits and risks of liberalization of Canada's foreign ownership restrictions, it is important to ask the questions:

- How are Canadian telecommunications markets performing today?
- Would they perform better if restrictions on foreign investment were relaxed?

If Canadian markets were leading the world in performance in all segments, the case for liberalization would not be as strong as it would be if Canadian markets were providing Canadians with fewer, poorer-quality or higher-priced services than markets in countries with fewer restrictions.

Chapter 1 of the report provides an overview of the performance of Canadian telecommunications markets relative to those in other OECD countries. Canadians have traditionally enjoyed among the highest quality and lowest prices of basic telephone services among OECD and G7 countries. The data in Chapter 1 indicate that Canadian telecommunications service providers have generally served the country well. Wireline telephone service is available to 99.5 percent of Canadian households, and 96 percent subscribe to the service. This number has come down slightly in recent years because of wireless substitution. Canada ranks seventh among OECD countries and second among G7 countries in the level of main telephone line subscribers per 100 population.

Canada has been a global leader in making broadband telecommunications services available to its citizens. In the mid-1990s, Canada was the first OECD country in the world to deploy DSL (digital subscriber line) technology and the second to deploy cable modem technology. Until 2003, Canada ranked second in the world in terms of the number of broadband subscribers per 100 population. However, Canada's role as a leader in broadband deployment is slipping somewhat. In June 2005, Canada was ranked sixth in terms of subscribers per 100 population, and sixth in terms of the lowest available broadband pricing among OECD countries. As described in Chapter 1, Canada risks slipping further behind as other countries including the U.S., Japan and South Korea move aggressively to deploy more advanced, high-speed networks using fibre-to-the-home (FTTH) technology with speeds up to 100 Mbps.

Canada's comparative performance has not been nearly as good when it comes to wireless telecommunications services. This is a troubling indicator, since wireless services, both mobile and fixed, are increasingly important to Canadian productivity and to the potential convenience, entertainment, security and other social benefits that individual Canadians obtain from telecommunications.

Today, Canada ranks second last of 30 OECD countries in terms of the number of wireless subscribers per 100 population. There are historical reasons for Canada's lagging performance, including Canada's comparatively low-cost wireline services and the fact that, in Canada, wireless providers do not charge on the calling-party-pays basis that is used in many other OECD countries. However, the same circumstances as in Canada apply in U.S. markets. In the third quarter of 2005, the U.S. wireless penetration rate of 67 per 100 population was well ahead of the Canadian rate of 50.6.[22] In addition to having lower mobile wireless penetration than the U.S., Canada has much lower wireless usage — about 52 percent of the average U.S. usage, measured in minutes of use per month. As a related metric, the prices of Canadian wireless services are relatively high. Canada ranks tenth among OECD countries based on the prices to low-usage customers, seventh on prices to medium-usage customers and 13th on prices to high-usage customers.

There is evidence to suggest that emerging new telecommunications markets, particularly the fixed wireless broadband market, are developing and deploying new services faster in the U.S. and many other countries than they are in Canada. There has been rapid deployment of innovative new fixed wireless services in most OECD countries outside North America by service providers with regional and national licenses. For a number of reasons, Canada has not moved as quickly.

It seems likely that the quality, pricing and availability of wireless services — both mobile and fixed — would improve significantly if Canada's foreign ownership restrictions were liberalized. It has been pointed out to the Panel that Canadian telecommunications markets are not as competitive as those in the U.S. The number of cellular mobile service providers has shrunk to three, all of which are owned by wireline telephone or cable groups. Canada has been slow to adopt pro-competitive initiatives, as described in Chapter 1.

Canada is one of very few, if any, OECD countries where major international wireless operators do not participate actively in the supply of wireless services. The major multinational wireless operators have brought significant new technology transfers, capital, marketing and management know-how to the U.S. and most other OECD countries — but they are not able to participate fully in Canadian markets. Based on the experience of other countries, it seems difficult to dispute that their presence would significantly improve the range, quality and pricing of wireless services available to Canadians.

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[22] Source: Merrill Lynch, Global Wireless Matrix, 3Q2005.

The Panel believes the same would be true in the case of fixed wireless broadband markets — markets that are key to Canada's ability to provide broadband connectivity to its citizens, and to roll out productivity-enhancing services to Canadian business. Accordingly, the Panel believes the case for liberalization of Canada's foreign investment restrictions is strongest in the newer, emerging markets, where Canadian performance lags that of other countries — such as those in the mobile and fixed wireless markets.

## Public Interest Considerations

The economic reasons for liberalization of the foreign investment rules in Canadian telecommunications markets are strong, particularly in newer, emerging markets, where global technology and other transfers of "know-how" could accelerate the deployment of advanced services. However, the Panel has also considered the concerns expressed by some parties that liberalization will constrain Canada's ability to achieve other policy objectives and protect the public interest in a number of other respects. These concerns have often focused on the significant place that Canada's largest telecommunications carriers occupy in the Canadian telecommunications and broadcasting markets. Two companies, BCE Inc. and TELUS Corp., account for 80 percent of all revenues in the telecommunications segment,[23] and two other companies, Rogers Communications Inc. and Shaw Communications Inc., account for approximately 70 percent of cable telecommunications segment revenues in Canada.[24] Three of the same four firms, BCE, TELUS and Rogers, account for 92 percent of the mobile wireless market in terms of subscribers (85 percent in terms of revenues).[25]

Four examples of public interest concerns about foreign control of Canadian telecommunications carriers, although certainly not the only ones, relate to retention of head offices and head office functions for telecommunications firms in Canada, retention of employment and highly talented and skilled employees in the telecommunications sector, retention of research and development (R&D) activity in Canada, and protection of Canada's public safety and national security.

### Head Office Location and Functions

There is a concern that in some cases a foreign acquisition of a Canadian company may result in the transfer out of Canada of the target company's head office functions to the U.S. or other foreign jurisdiction of the new parent company. There are examples where this has occurred in the past. The highly networked nature of telecommunications services facilitates the centralization of some management and network control functions. However, these functions may be established in different locations, either in Canada or another country, and it is not clear that Canada would be a net loser of head office or network control functions, even if some Canadian carriers became controlled by non-Canadian firms.

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[23] Source : Based on OECD Communications Outlook 2005.

[24] Source : National Bank Financial, Communications and Media, January 5, 2006 (Rogers Communications and Shaw Communications).

[25] Source : Based on company financial results.

Nevertheless, a concern remains, particularly in the case of the large Canadian telecommunications companies with extensive head office functions, that the transfer of ownership to U.S. or other foreign company could lead to a transfer of positions for skilled and well-paid positions out of Canada. Similarly, there is a concern that a foreign-owned company would no longer rely, to the same degree, on Canadian engineering, financial, management consulting and other advisory services that are ancillary to head office functions.

### Mobile Talent and Employment

As a related matter, the Panel notes that Canada faces a significant demographic challenge. Canada is moving from a surplus labour market to a deficit labour market where it can expect to face shortages of labour across all sectors and regions of the country.[26] In this context, concerns have been expressed that foreign acquisition of major Canadian telecommunications carriers could lead to the loss of highly skilled personnel or a decline in new employment opportunities — beyond those related to head office functions.

In the telecommunications sector, it is not clear that such a job loss would occur, given the strong incentives for the foreign acquirer to retain and attract highly qualified individuals to run the knowledge-intensive telecommunications business. It is also noted that new "greenfield" investment, domestic or foreign, in the Canadian telecommunications sector would likely create new employment. Such investment could also provide incentives for increasingly mobile and talented individuals to stay in Canada rather than migrate to other locations around the world.

### Research and Development

R&D activity in the telecommunications sector, and more broadly in the ICT industries, is important for the telecommunications industry itself, but more generally for Canada's future economic prosperity. As discussed in greater detail in Chapter 7, in the absence of a strong telecommunications (and ICT) R&D base, Canada will lack the people, ideas and knowledge networks to effectively shape and implement ICT adoption strategies throughout the Canadian economy.

In this context, the weight of the economic evidence is that foreign investment can bring important R&D capabilities into Canada, including and not only greenfield investments. Nevertheless, in a foreign takeover of some existing Canadian telecommunications carriers, the implications for Canadian R&D performance could be a matter of public interest. The focus of concern may not necessarily be connected with the R&D undertaken directly by a telecommunications carrier acquired by a foreign firm, but rather with future willingness to purchase innovative new products and technologies from other Canadian companies that have formed part of its supply chain, instead of from the supply chain companies of the foreign acquirer.

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[26] According to the Department of Finance, "currently there are more than five people of working age (15 to 64) for every person of retirement age (65+). Within the next 15 years, this ratio is projected to fall to four to one, and to be less than two and a half to one by 2050." Department of Finance, *A Plan for Growth and Prosperity* (Ottawa: November 2005), p. 57. Available online at: **http://www.fin.gc.ca/ec2005/ec/ecce2005[illegible]df**

### Public Safety and National Security

A number of submissions to the Panel raised the issue of the impact of foreign investment liberalization in the telecommunications sector on Canada's ability to protect its public safety and national security interests. The Panel also notes that the existing foreign investment rules for telecommunications, which are founded on voting share restrictions, may not fully address national security concerns.

Canada has not been immune from the concerns about national security that have increased around the world in recent years. The Panel notes that on June 20, 2005, the Minister of Industry tabled in the House of Commons Bill C-59, *An Act to amend the Investment Canada Act*, which would "enable the government to review foreign investments in those rare instances where they might compromise Canada's national security."[27] Bill C-59 was not passed before Parliament was dissolved in December 2005.

Telecommunications infrastructure plays a vital role in every country's national security. Most of the concerns about national security can and should be dealt with through the implementation of effective legislation dealing with wiretapping, cybercrime and general criminal law. However, in the heightened security environment of the early 21st century, it is likely that the foreign acquisition of the major telecommunications carriers of OECD countries such as the U.S., U.K., France, Germany and Japan could nevertheless raise concerns about national security, depending in part on the nationality and motivation of the acquirer. These countries maintain explicit or implicit controls on foreign investment in their telecommunications carriers.

### Impacts on Broadcasting Policy

While the foregoing public interest concerns have been raised in the context of liberalization of Canada's foreign ownership restrictions on telecommunications common carriers, the strongest concerns that have arisen in recent years concern the impact of such liberalization on the effectiveness of Canadian broadcasting policy.

In this context, the Panel notes that in the same year that the House of Commons Standing Committee on Industry, Science and Technology recommended liberalization of the foreign ownership restrictions on telecommunications carriers, the House of Commons Standing Committee on Canadian Heritage recommended maintaining the existing rules "in order to protect Canada's broadcasting system from foreign domination." Similar concerns have frequently been expressed by members of Canada's broadcast production community and related organizations.

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[27] "Minister of Industry Introduces Amendments to the *Investment Canada Act*" Industry Canada Press Release, June 20, 2005. Available online at: **http://www.ic.gc.ca/cmb/welcomeic.nsf/cdd9dc973c4bf6bc852564ca006418a0/85256a5d006b972085257026004f0c6f!OpenDocument**

The concern is based in part on the reasonable assumption that removal of foreign investment restrictions on telecommunications common carriers would require the government to also remove restrictions on foreign investment in the BDUs that operate in the same market as them.

Since telecommunications common carriers increasingly compete in the same markets as BDUs, the Panel agrees that it would be competitively inequitable and financially damaging to the BDU industry to retain foreign ownership restrictions on them while removing them from telecommunications common carriers. To the extent that removal of the restrictions would lead to greater- or lower-cost access to foreign capital markets, the regulatory framework for foreign ownership should treat both types of competitive players fairly.

However, the Panel believes it should be possible to develop a phased and flexible approach to liberalization of Canada's foreign ownership restrictions. Such an approach should treat the major players in both industries equitably, while permitting Canada to benefit in the short term from foreign investments in new and smaller players, especially in emerging markets where such investments are likely to substantially improve the efficiency and performance of our telecommunications markets.

### Conclusions and Proposal

Among OECD countries, Canada has maintained one of the most restrictive and inflexible set of rules limiting foreign investment in the telecommunications sector. However, the Panel notes that countries that have removed, or significantly liberalized, their foreign investment restrictions in their telecommunications sectors have generally not relinquished all capacity to respond to public interest considerations related to foreign investment in their telecommunications markets. Other OECD countries have in place explicit or implicit safeguards to ensure that foreign investment in their telecommunications markets serves and does not prejudice their national public interest.

In the U.S., for example, the *Communications Act* of 1934 allows the Federal Communications Commission (FCC) to deny radio licences to corporations with greater than 25-percent foreign investment if the public interest is served by this refusal. In the age of wireless communications this public interest safeguard has a very broad application. In addition, the U.S. government retains considerable discretion over the review of all foreign direct investment for purposes of protecting national security.[28] The Panel has been advised that other oversight mechanisms can be used to screen foreign investments in key telecommunications infrastructure in EU and other OECD countries.

The Panel sees significant merit in removing Canada's current rigid and inflexible restrictions on foreign investment in telecommunications markets and replacing them with a more flexible regime that permits such investment where it benefits Canada and restricts investments that would not benefit Canada.

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[28] Section 5021 of the U.S. *Omnibus Trade and Competitiveness Act* of 1988 amended Section 721 of the *Defense Production Act* of 1950 to provide authority to the U.S. President, commonly referred to as the Exon Florio provision, to suspend or prohibit any foreign acquisition, merger or takeover of a U.S. corporation that is determined to threaten the national security of the United States.

Such a regime could consider potential benefits of specific types of investments such as promotion of competition, better service and innovation in markets that are not performing as well as they should, as well as risks such as those described in the section of this Afterword dealing with public interest considerations. Other factors involving Canada's interests could be taken into account, such as security concerns and multi-sector trade negotiations or relations. For example, it may not be in Canada's interests to approve an investment from a country during a period when that country has in place non-tariff barriers to Canadian trade in other significant markets. A more flexible investment regime would permit a balancing of the Canadian public interest, and not preclude Canadians from achieving the real benefits that could be realized from foreign investment.

As the Panel notes, the relationship between Canadian broadcasting policy and telecommunications policy has been a major issue in the debates on liberalization of Canadian foreign investment restrictions in the telecommunications industry. While removal of the telecommunications restrictions would increase the competitiveness of the telecommunications industry in key market segments, and would improve the productivity of Canadian telecommunications markets, concerns have consistently been raised about the impacts on Canadian broadcasting policy — particularly about the impacts on Canadian broadcasting of increased foreign investment in Canadian cable and satellite BDUs.

Earlier in this Afterword, the Panel suggests that the proposed broadcasting policy review should resolve issues related to the separation of Canadian broadcasting "content" policy from policies for the "carriage" of telecommunications. Such a separation would permit creation of symmetrical foreign investment rules for traditional telecommunications carriers as well as the cable and satellite undertakings that now operate in the same telecommunications markets.

Pending completion of this review, the Panel proposes that the government should adopt a phased and flexible approach to liberalization of restrictions on foreign investment in telecommunications service providers to the extent that they are not subject to the *Broadcasting Act*. Ownership and control of Canadian telecommunications common carriers should be liberalized in two phases:

- In the first phase, the *Telecommunications Act* should be amended to give the federal Cabinet authority to waive the foreign ownership and control restrictions on Canadian telecommunications common carriers when it deems a foreign investment or class of investments to be in the public interest.

- During the first phase, there should be a presumption that investments in any new start-up telecommunications investment or in any telecommunications common carrier with less than 10 percent of the revenues in any telecommunications service market are in the public interest. This presumption could be rebutted by evidence related to a particular investor or investment. The presumption should apply to all investments in fixed or mobile wireless markets as well as to investments in new entrants and smaller players (i.e. those below the 10-percent limit). To encourage longer-term investment, foreign investors should remain exempt from the foreign investment restrictions if they are successful in growing the market share of their businesses beyond 10 percent.
- The second phase of liberalization should be undertaken after completion of the review of broadcasting policy proposed by the Panel. At that time, there should be a broader liberalization of the foreign investment rules in a manner that treats all telecommunications common carriers including the cable telecommunications industry in a fair and competitively neutral manner. The proposed liberalization should apply to the "carriage" business of BDUs, and new broadcasting policies should focus any necessary Canadian ownership restrictions on broadcasting "content" businesses. The Cabinet should retain the authority to screen significant investments in the Canadian telecommunications carriage business to ensure that they are consistent with the public interest.

As indicated in its proposal, the Panel believes, in liberalizing Canada's foreign ownership rules, it would be preferable to amend the *Telecommunications Act* to permit the foreign acquisition of a Canadian telecommunications common carrier, if it is in the public interest to do so. This would likely provide for a phased liberalization approach that would be better suited to the Canadian communications sector than if this authority was exercised under the *Investment Canada Act*. In particular:

- It would provide a better alternative to the economy-wide "net benefits" approach used under the *Investment Canada Act*, and would permit the development of Canadian policies favouring foreign investment in ways that reflect the telecommunications sector's structure, regulatory environment and market circumstances. For example, it would facilitate introduction of the Panel's proposed presumption that foreign investment in any new entrant or telecommunications common carrier with less than 10 percent of the revenues in the telecommunications service market would be in the public interest unless otherwise shown. Investments in such companies generally will not raise significant issues of competitive fairness for existing incumbents that are currently subject to the foreign investment restrictions of either the *Telecommunications Act* or the *Broadcasting Act*. Many of the relevant markets that would be covered under this presumption represent emerging and innovative sectors where new and patient capital is critical, such as new applications of fixed and mobile wireless technology.
- It would likely raise fewer potential trade and investment policy problems in relation to Canadian commitments under Chapter 11 of the North American Free Trade Agreement.
- It would permit the development of more transparent and concrete criteria for the application of a public interest test (including in the area of public safety and national security) than are currently available or contemplated under the *Investment Canada Act*.

# List of Recommendations

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## Chapter 2 Policy Objectives and Regulation

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**Recommendation 2-1** The Canadian telecommunications policy objectives as currently set out in the *Telecommunications Act* should be clarified to:

(a) set out the objectives of Canadian telecommunications policy, and

(b) provide guidelines for regulatory and government action to achieve these objectives.

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**Recommendation 2-2** Section 7 of the *Telecommunications Act* should be removed and replaced with the following:

*"Canadian Telecommunications Policy and Government and Regulatory Guidelines"*

"7. It is hereby affirmed that telecommunications performs an essential role in enabling the economic and social welfare of Canada and that Canadian telecommunications policy is based on the following objectives:

(a) to promote affordable access to advanced telecommunications services in all regions of Canada, including urban, rural and remote areas;

(b) to enhance the efficiency of Canadian telecommunications markets and the productivity of the Canadian economy; and

(c) to enhance the social well-being of Canadians and the inclusiveness of Canadian society by:
  (i) facilitating access to telecommunications by persons with disabilities;
  (ii) maintaining public safety and security;
  (iii) contributing to the protection of personal privacy; and
  (iv) limiting public nuisance through telecommunications."

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**Recommendation 2-3** The *Telecommunications Act* should be amended by adding the following immediately after proposed section 7:

"7.1 The following guidelines shall be applied in implementing the telecommunications policy objectives:

(a) market forces shall be relied upon to the maximum extent feasible as the means of achieving the telecommunications policy objectives;

(b) regulatory and other government measures shall be applied only where
  (i) market forces are unlikely to achieve a telecommunications policy objective within a reasonable time frame, and
  (ii) the costs of such measures do not outweigh the benefits; and

(c) regulatory and other government measures shall be efficient and proportionate to their purpose and shall interfere with the operation of competitive market forces to the minimum extent necessary to meet the objectives."

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| **Recommendation 2-4** | The *Telecommunications Act* should be amended by adding the following immediately after proposed section 7.1:<br>"7.2 All policy documents, decisions, orders or other means of introducing or amending significant government or regulatory measures shall:<br>(a) specify the telecommunications policy objective that is advanced by the policy or measure;<br>(b) demonstrate compliance with the statutory guidelines for achievement of Canada's telecommunications policy objectives." |
| **Recommendation 2-5** | Amendments should be made to the *Radiocommunication Act*, the *Department of Industry Act* and other relevant federal legislation to ensure that all government departments and agencies that implement telecommunications policies, programs or regulatory measures act in a manner that promotes the achievement of Canadian telecommunications policy objectives and complies with the implementation guidelines as set out in the *Telecommunications Act*. |
| **Recommendation 2-6** | The Canadian Radio-television and Telecommunications Commission should be empowered to directly regulate all telecommunications service providers to the extent necessary to implement the Canadian telecommunications policy objectives. |

## Chapter 3 Economic Regulation

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| **Recommendation 3-1** | The regulatory framework for Canada's telecommunications sector should rely on competition and market forces rather than on economic regulation, to the maximum extent feasible. |
| **Recommendation 3-2** | There should be a clear separation between economic and social regulation, with clear identification of the objectives of the regulation and the measures designed to achieve them efficiently, rather than using economic regulation to pursue social objectives. |
| **Recommendation 3-3** | The *Telecommunications Act* should be amended by removing the current legislative presumption that telecommunications services must be regulated unless the CRTC makes a decision to forbear, and replacing it with a presumption of deregulation whereby<br>(a) economic regulation shall apply only if there is a finding that a service provider has significant market power, and<br>(b) retail telecommunications services shall be offered without the need for tariff filings or similar *ex ante* measures in markets where there is no significant market power. |

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| **Recommendation 3-4** | The approach to forbearance established in section 34 of the *Telecommunications Act* should be replaced. New provisions should state that, upon application by any party, telecommunications markets subject to economic regulation should be reviewed. Where the review concludes that there is no longer any significant market power in a market, restrictions on price increases should be discontinued. |
| **Recommendation 3-5** | There should be a transition period of 12 to 18 months, during which time services that are currently subject to economic regulation shall continue to be subject to such regulation until there has been an opportunity to examine whether there is significant market power in markets for these services. |
| **Recommendation 3-6** | Economic regulation of retail basic transmission services should be retained or instituted only if there is a finding that a service provider has significant market power in the market for such services. |
| **Recommendation 3-7** | Discretionary services should not be regulated to prevent price increases, but subject only to constraints on anti-competitive conduct. |
| **Recommendation 3-8** | (a) Currently forborne retail services should continue to be unregulated. Any current conditions on forbearance should be reviewed and maintained only if significant market power is found.<br>(b) New basic transmission services should be subject to a presumption of no economic regulation.<br>(c) It should be open to any party to request a review of the existence of significant market power in any telecommunications market. If the review finds that a service provider has significant market power in the market, the next step should be to examine whether competition law, as adapted to telecommunications services, is sufficient to protect the interests of customers and prevent anti-competitive conduct. If it is not, then the service should be subject to economic regulation. If the review finds no significant market power, the service should be deregulated. |
| **Recommendation 3-9** | Provision should be made for reclassifying a retail service from a discretionary to a basic transmission service, and vice versa. The usual tests should be applied when a service is reclassified from discretionary to basic transmission in order to determine whether it shall be subject to economic regulation. |
| **Recommendation 3-10** | All forms of economic regulation should be applied symmetrically to all telecommunications service providers having significant market power in any telecommunications market. |
| **Recommendation 3-11** | A price cap framework should be used when economic regulation of retail services is necessary, and enforced on an *ex post* basis by means of an annual filing or in response to a complaint by a customer or a competitor. |

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| **Recommendation 3-12** | There should be no prohibition on price differentiation and targeted pricing unless they are part of a practice that is determined to be anti-competitive conduct. |
| **Recommendation 3-13** | The current standards for price regulation as set out in section 27 of the *Telecommunications Act* are too general and allow for too much discretion. They should be replaced by more specific measures targeted at consumer protection and control of anti-competitive conduct. |
| **Recommendation 3-14** | Control of anti-competitive conduct in telecommunications service markets should be guided by competition law principles, suitably modified to take into account the specific features of the telecommunications service industry. |
| **Recommendation 3-15** | A working group should be established and comprised of members drawn from both the CRTC and the Competition Bureau as well as independent experts. The working group should draw upon competition law principles and knowledge of the telecommunications industry, as soon as reasonably feasible, to develop specific guidelines for the application of competition policy to the industry, including<br>(a) specification of the types of practices that could constitute abuse of dominance, and<br>(b) guidelines for market definition and analysis of significant market power. |
| **Recommendation 3-16** | Telecommunications service providers should continue to file tariffs for services that are subject to economic regulation. These tariffs should be open to public inspection. |
| **Recommendation 3-17** | Tariffs for regulated services should be subject to a negative disallowance process, in that they would automatically come into effect seven days after they are filed, unless they are suspended or disallowed by the CRTC, in which case the CRTC should provide<br>(a) the reasons for a suspension or a disallowance, and<br>(b) an indication of when a final decision on a suspension will be made. |
| **Recommendation 3-18** | A telecommunications service provider should be allowed to discontinue a regulated service only if authorized by the CRTC. A telecommunications service provider of a deregulated service should be able to discontinue service without authorization, provided that reasonable notice is given to customers. |
| **Recommendation 3-19** | The regulatory framework should continue to require owners of essential wholesale facilities to make them available to competitors at regulated wholesale rates. Regulatory requirements to provide non-essential wholesale services or facilities should be phased out in order to provide increased incentives for innovation, investment and more widespread construction of competing network facilities. |

**Recommendation 3-20** The *Telecommunications Act* should be amended

(a) to provide for the creation of a category of essential facilities, including ancillary services, that should be subject to a regime of mandated supply at regulated rates, and

(b) to establish a process whereby this category of services can be kept up-to-date.

**Recommendation 3-21** A working group of CRTC and Competition Bureau members should be established as soon as possible to develop recommendations to the CRTC on the definition of essential facilities and its application to today's telecommunications networks.

**Recommendation 3-22** A regular review of the essential facilities category should be conducted at least every three to five years.

**Recommendation 3-23** Existing mandatory wholesale arrangements, including mandatory resale of retail services, should remain in place during a transition period. The transition period should be three to five years for most non-essential services or facilities, with consideration given to a longer period for certain non-essential, co-location services because of their typically high, one-time costs. The transition arrangements should be developed by the working group of the CRTC and Competition Bureau.

**Recommendation 3-24** Following the transition period for phasing out mandatory wholesale arrangements, only essential facilities and interconnection services should remain subject to mandatory access requirements and regulated pricing.

**Recommendation 3-25**

(a) Tariff regulation should not apply to new, non-essential wholesale services, and should be removed from existing non-essential wholesale service arrangements, including the resale of regulated retail services, following a three-to-five-year transition period.

(b) The *Telecommunications Act* should be amended to require the filing of tariffs for wholesale services only for essential facilities and ancillary services and for interconnections services. Tariffs should be filed for existing non-essential facilities during the transition period to phase them out.

(c) The Governor-in-Council should issue a policy direction to the CRTC stating that regulating the availability and pricing of new, non-essential facilities and ancillary services is inconsistent with policy objectives set out in section 7 of the *Telecommunications Act*, particularly paragraphs (f) and (g).*

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* These objectives of s. 7 state:

(f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;

(g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services;

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| **Recommendation 3-26** | Section 29 of *the Telecommunications Act* should be amended to give the CRTC clear authority to mandate interconnection arrangements and interoperability between all public networks when the CRTC is satisfied that<br>(a) there is a significant public interest in requiring the interconnection, and<br>(b) market forces and commercial negotiations are unlikely to result in efficient interconnection and interoperability on reasonable terms and in a timely manner. |
| **Recommendation 3-27** | Primary responsibility for regulating interconnection, including resolution of interconnection disputes, should remain with the CRTC. |
| **Recommendation 3-28** | The CRTC should retain power to regulate the prices as well as other terms and conditions of wholesale access or interconnection where<br>(a) these have been mandated, or<br>(b) there is a dispute involving commercial access or interconnection.<br>Providers of mandated wholesale access or interconnection services should be obliged to file relevant tariffs with the CRTC. |
| **Recommendation 3-29** | The CRTC should undertake a public review of its incremental costing methodology as soon as possible. |
| **Recommendation 3-30** | Resellers in the local telecommunications services market who choose to undertake all the obligations of a competitive local exchange carrier should have all the regulatory rights and obligations applicable to competitive local exchange carriers. |

## Chapter 4 Telecommunications Competition Tribunal

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| **Recommendation 4-1** | A new Telecommunications Competition Tribunal should be established operating as a type of "joint panel" of the CRTC and the Competition Bureau to address competition issues in the telecommunications sector. |
| **Recommendation 4-2** | The Telecommunications Competition Tribunal should be a transitional regulatory mechanism. Its mandate should terminate after five years, unless there continues to be significant market power in a substantial number of telecom markets. |

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| **Recommendation 4-3** | The Telecommunications Competition Tribunal should be comprised of three members as follows:<br>(a) the Vice Chair, Telecommunications of the CRTC or another CRTC commissioner appointed by the CRTC,<br>(b) the Commissioner of Competition or one of the Competition Bureau's senior staff appointed by the Commissioner, and<br>(c) a third member to be appointed by the Governor-in-Council in accordance with the new recruitment and selection process for new CRTC telecommunications commissioners as recommended in Chapter 9. |
| **Recommendation 4-4** | The Governor-in-Council's appointee to the Telecommunications Competition Tribunal should act as its chair. |
| **Recommendation 4-5** | Each member of the Telecommunications Competition Tribunal should have one vote, and decisions should be made by a majority of votes. |
| **Recommendation 4-6** | The Telecommunications Competition Tribunal should be constituted as an independent quasi-judicial regulatory authority empowered to make rulings on matters within its jurisdiction that have the same force and effect as CRTC decisions or orders. |
| **Recommendation 4-7** | The Telecommunications Competition Tribunal should have all *Telecommunications Act* powers available to the CRTC and all *Competition Act* powers available to the Competition Tribunal in civil cases. |
| **Recommendation 4-8** | The Telecommunications Competition Tribunal should be staffed, to the greatest extent possible, by employees of the CRTC and the Competition Bureau. The CRTC and the Commissioner of Competition should be directed to assign personnel with the appropriate expertise to work under the direction of the Telecommunications Competition Tribunal in support of its mandate, as required by the Telecommunications Competition Tribunal from time to time. |
| **Recommendation 4-9** | The Telecommunications Competition Tribunal should also be empowered to retain a small secretariat of managers and support staff to carry out its functions. |
| **Recommendation 4-10** | The Telecommunications Competition Tribunal should be granted clear authority and sufficient budget to retain outside expert consultants at market rates when required to provide specialized expertise or to meet heavy workload requirements. |
| **Recommendation 4-11** | Personnel assigned by the Commissioner of Competition or the CRTC to support the Telecommunications Competition Tribunal should have access to confidential information filed with it and should be permitted to share such information with other officials at the Competition Bureau or the CRTC to the extent necessary to perform their duties at the Telecommunications Competition Tribunal. Where information is filed in confidence with the Telecommunications Competition Tribunal and the claim for confidentiality is accepted by the Telecommunications Competition Tribunal, protection should be extended to any disclosure of the information to other officials of the Competition Bureau or the CRTC. |

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| **Recommendation 4-12** | Upon request by the Commissioner of Competition in the course of an investigation under the *Competition Act* involving the telecommunications sector, the CRTC or the Telecommunications Competition Tribunal should be required to provide assistance to the Competition Bureau in the form of personnel (subject to resource constraints) and to provide any information in their possession that may assist in the investigation or market analysis. |
| **Recommendation 4-13** | The Telecommunications Fees Regulations should be amended to provide for recovery of the Telecommunications Competition Tribunal's annual operating expenses from the telecommunications industry. |
| **Recommendation 4-14** | The Telecommunications Competition Tribunal should have exclusive jurisdiction to determine the following matters:<br>(a) applications for deregulation of services in telecommunications markets on the basis that significant market power does not exist,<br>(b) complaints of anti-competitive conduct in all telecommunications markets, other than the terminal equipment market,<br>(c) determinations on which services should be subject to mandated wholesale access services and establishment of the regulatory regime applicable to such services,<br>(d) applications for re-regulation of services in telecommunications markets where significant market power is alleged to exist, and<br>(e) reviews of mergers involving telecommunications service providers. |
| **Recommendation 4-15** | The Telecommunications Competition Tribunal should define telecommunications markets and assess whether significant market power exists in accordance with competition law principles. |
| **Recommendation 4-16** | The Telecommunications Competition Tribunal should be granted exclusive jurisdiction over civil allegations of anti-competitive conduct in the telecommunications sector. Mechanisms should be put in place for consultation among the Telecommunications Competition Tribunal, the CRTC and the Commissioner of Competition to determine which institution should exercise jurisdiction in borderline cases. |
| **Recommendation 4-17** | Mechanisms should be put in place to enable the CRTC and the Commissioner of Competition to refer telecommunications competition issues to the Telecommunications Competition Tribunal when they arise in the context of broader proceedings that are properly within their respective jurisdictions, and for the Telecommunications Competition Tribunal to refer issues of a technical, rate-setting or social nature to the CRTC for determination or implementation. |

## Chapter 5 Technical Regulation

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| **Recommendation 5-1** | The wording of subsection 43.(5) of the *Telecommunications Act* should be expanded to ensure that the CRTC has a clear power to resolve disputes and order access to support structures constructed on, over, along or under public or private property of all descriptions. These access rights should be defined to include the right to install, maintain, repair and operate transmission facilities as defined in the Act. Subsection 43.(5) should be amended to ensure that it applies to support structures owned by electricity utilities, municipalities and other parties. |
| **Recommendation 5-2** | The CRTC should be empowered to resolve disputes over the terms and conditions of access between telecommunications service providers or broadcasting distribution undertakings and third-party owners of support structures, including, but not limited to, support structures owned by electricity utilities, municipalities or other parties. Under this new regime, parties should be required to attempt to reach agreement on access, failing which the CRTC should be empowered to resolve any disputes and order access on terms and conditions, including rates, that are binding on both parties. |
| **Recommendation 5-3** | The CRTC, prior to making an order to resolve a dispute involving access to support structures owned by an entity that is provincially regulated, should be required to consult with any provincial regulator that has ruled on the relevant terms and conditions of access. |
| **Recommendation 5-4** | The wording of subsections 43.(2) and (3) of the *Telecommunications Act* should be expanded to ensure that the CRTC has the power to resolve disputes and order access to public property of all description. These access rights should be defined to encompass the right to install, maintain, repair and operate all "transmission facilities" as defined in the Act. The CRTC's power to order remedial action in subsection 43.(4) should include access for the purposes of maintaining, repairing or operating transmission facilities, as well as constructing or installing them. Subsection 43.(4) should also be clarified to empower the CRTC to establish and enforce principles of general application that can be used by parties to negotiate broad-based municipal access agreements, which can then be brought to the CRTC for review or dispute resolution if parties are unable to reach agreement. |
| **Recommendation 5-5** | The CRTC should be empowered to regulate and promote the sharing of antenna towers used for telecommunications purposes, resolve disputes regarding tower access, and enforce its regulations in an effective and timely manner. |
| **Recommendation 5-6** | The CRTC should be empowered to prohibit wireless carriers from entering into exclusive arrangements for locating telecommunications antennas on rooftops and, in those cases where building owners and wireless service providers are unable to agree on terms and conditions of access, should be empowered to resolve the dispute on such terms as it considers appropriate, with its rulings binding on the parties. |

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| **Recommendation 5-7** | The CRTC should be empowered to establish guidelines for access to multi-unit buildings, including guidelines for the pricing and terms and conditions of access. Telecommunications service providers and building owners should be required to negotiate access arrangements in accordance with such guidelines. |
| **Recommendation 5-8** | The CRTC should be empowered to resolve disputes between telecommunications service providers and building owners respecting access to multi-unit buildings, including access to the building itself from the property boundary, as well as in-building wiring, related ducts, risers and equipment rooms, for purposes of providing telecommunications services to tenants and other users in the building. When the CRTC exercises this jurisdiction, its ruling respecting terms and conditions of access should be binding on the parties. |
| **Recommendation 5-9** | Industry Canada should develop a new spectrum policy to provide clear direction to the CRTC in exercising its new authority to manage and regulate Canada's radio spectrum. The new policy should take into account the work completed by Industry Canada as part of its ongoing spectrum policy framework review, and should ensure that the following areas are addressed:<br>(a) availability of adequate spectrum to meet demand for deployment of fixed and mobile broadband networks across Canada,<br>(b) availability of licensed and licence-exempt spectrum for the U-CAN program recommended in this report,<br>(c) reliance on market-based approaches to spectrum management as much as possible,<br>(d) establishment of market-based exclusive spectrum rights (i.e. ability to buy, sell and lease spectrum holdings) and elimination of barriers to the development of secondary markets in spectrum,<br>(e) recovery and "refarming" of previously assigned spectrum that is unused or underutilized in order to accommodate new services,<br>(f) review of current licence fees to correct fee imbalances that may exist among service providers, separating where practical cost-recovery fees from those fees charged for the use of a limited public resource, and applying market-based pricing for non-auction licences,<br>(g) streamlining and standardization of licensing processes, and<br>(h) continued use of regulatory mechanisms such as spectrum caps (aggregation limits) where spectrum is scarce in order to provide an opportunity for new entrants to acquire spectrum and for Canadians to have an expanded choice of service providers. |

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| **Recommendation 5-10** | The authority to regulate Canada's radio spectrum and to license its use should be transferred from Industry Canada to the CRTC. |
| **Recommendation 5-11** | Industry Canada and the CRTC should form a joint working group to plan the transition and integration of spectrum regulation, management and related functions to the CRTC, and to develop a mechanism for ongoing coordination between the two organizations on spectrum policy development. |
| **Recommendation 5-12** | The regulation of telecommunications equipment and devices should be transferred from Industry Canada to the CRTC. The CRTC should continue to rely primarily on industry organizations to administer equipment certification programs, including authorized certification bodies. |
| **Recommendation 5-13** | Programs related to the regulation of telecommunications equipment and devices should be reviewed by Industry Canada prior to the transfer from Industry Canada to the CRTC to eliminate any unnecessary regulation. |

## Chapter 6 Social Regulation

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| **Recommendation 6-1** | The *Telecommunications Act* should be amended to impose a clear obligation on incumbent telephone companies to provide basic telephone service in areas where they have available network infrastructure. Approval by the CRTC should be required for an incumbent telephone company to abandon such basic telephone service. |
| **Recommendation 6-2** | A new Telecommunications Consumer Agency should be established with authority to resolve complaints from individual and small business retail customers of any telecommunications service provider. |
| **Recommendation 6-3** | The proposed Telecommunications Consumer Agency should be a self-funding, independent, industry-established agency. The agency's structure and functions should be determined by the CRTC. |
| **Recommendation 6-4** | All telecommunications service providers should be required to be members in good standing of the proposed Telecommunications Consumer Agency. |
| **Recommendation 6-5** | The *Telecommunications Act* should be amended to confirm the right of Canadian consumers to access publicly available Internet applications and content of their choice by means of all public telecommunications networks providing access to the Internet. This amendment should<br>(a) authorize the CRTC to administer and enforce these consumer access rights,<br>(b) take into account any reasonable technical constraints and efficiency considerations related to providing such access, and<br>(c) be subject to legal constraints on such access, such as those established in criminal, copyright and broadcasting laws. |

| **Chapter 7** | **Information and Communications Technology Policy** |
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| **Recommendation 7-1** | Under the leadership of the Prime Minister, the federal government should develop a national ICT adoption strategy focused on using ICTs to increase the productivity of the Canadian economy, the social well-being of Canadians and the inclusiveness of Canadian society. |
| **Recommendation 7-2** | The Prime Minister should mandate the Minister of Industry to develop and implement a national ICT adoption strategy in collaboration with key federal, provincial, territorial and municipal government colleagues as well as high-level representatives from the private, public and not-for-profit sectors, with the following objectives:<br>(a) strengthening ICT adoption by Canadian businesses, particularly small and medium-sized enterprises,<br>(b) strengthening the links between ICT sector research and development and ICT adoption,<br>(c) enhancing ICT adoption by governments,<br>(d) promoting development of ICT adoption skills on a coordinated national basis,<br>(e) improving security, confidence and trust in the online environment, and<br>(f) achieving ubiquitous access to broadband networks and services. |
| **Recommendation 7-3** | The Prime Minister should mandate the Minister of Industry to establish a National ICT Adoption Centre within Industry Canada to<br>(a) benchmark Canada's performance in the adoption and effective use of ICTs,<br>(b) conduct policy research and analysis on issues related to ICT adoption in the private and public sectors, in order to inform discussions and support new initiatives related to ICT adoption,<br>(c) coordinate policies, programs and other measures aimed at promoting the smart adoption of ICTs within the federal government with the provinces to avoid overlap and duplication of effort,<br>(d) be a lead advocate for the effective use of ICTs, particularly among small and medium-sized enterprises, and<br>(e) manage the deployment of the U-CAN program (see Recommendation 8-4). |
| **Recommendation 7-4** | The Minister of Industry should establish a high-level National ICT Advisory Council comprised of select federal, provincial and territorial ministers as well as leaders from the private sector, universities, research institutions, consumer groups and communities to provide ongoing advice on the development and implementation of the national ICT adoption strategy. |

**Recommendation 7-5** The federal government should introduce an ICT adoption tax credit targeted at small and medium-sized enterprises and having the following features:

(a) it should apply to investments in ICT assets and to complementary expenses related to ICT adoption,

(b) it should define ICT assets broadly as including computers, communications equipment, software and computerized manufacturing equipment,

(c) complementary expenditures related to the effective adoption of ICTs such as costs related to ICT training, organization change and process re-engineering necessary for ICT adoption should be eligible for the tax credit,

(d) in order to increase its effectiveness and reduce the associated tax expenditures, the ICT adoption tax credit should apply only to incremental ICT adoption costs, and

(e) the credit should be fully refundable when no tax is payable.

## Chapter 8 Connectivity: Completing the Job

**Recommendation 8-1** As a key part of its national ICT strategy, the federal government should

(a) ensure that Canada remains a global leader in the deployment of broadband networks, and

(b) immediately commence a program to ensure that affordable and reliable broadband services are available in all regions of Canada, including urban, rural and remote areas, by 2010 at the latest.

**Recommendation 8-2** The federal government should continually monitor technological developments in the telecommunications sector, assess their economic and social implications, and adopt policies to ensure that Canada continues to be a leader in the deployment of advanced telecommunications services.

**Recommendation 8-3** Federal government policy should recognize that market forces

(a) will continue to expand the availability of broadband access across the country, but

(b) will not on their own achieve the policy objective of deploying ubiquitous broadband access by 2010, particularly in rural and remote areas.

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| **Recommendation 8-4** | A specific, targeted government subsidy program, the Ubiquitous Canadian Access Network/Ubiquité Canada or U-CAN program, should be established to ensure that broadband access is made available to Canadians in areas where commercial operators are not providing service and are unlikely to do so for economic reasons. |
| **Recommendation 8-5** | The U-CAN program should aim to complete the job begun by BRAND of providing ubiquitous broadband throughout all regions in Canada that the market is not likely to serve on its own by 2010. |
| **Recommendation 8-6** | The budget allocation for the U-CAN program should be based on the projected costs of providing broadband connectivity to the remaining unserved areas of Canada. The funds should be assigned based on the projected cost of achieving such connectivity in each region. |
| **Recommendation 8-7** | The U-CAN program should be flexibly designed and implemented to reflect the needs of stakeholders in regions to be served, including governments, communities and the private sector. |
| **Recommendation 8-8** | U-CAN broadband expansion initiatives should be implemented only after coordination with those involved in other broadband expansion programs of the private sector, federal government departments and agencies as well as other levels of government. |
| **Recommendation 8-9** | The U-CAN program administrators should develop broadband expansion initiatives in consultation with community members and organizations who can help define community access needs. |
| **Recommendation 8-10** | The U-CAN program should not promote the duplication of existing or planned network facilities with networks that are subsidized by municipal, provincial or federal government funds. However, investment and subsidies by public bodies such as municipalities should not be discouraged in areas where the market fails to provide broadband access. |
| **Recommendation 8-11** | When subsidies are provided to network operators to expand backhaul networks into previously unserved areas, such operators should be required as a condition of obtaining the subsidy, or by regulation<br>(a) to provide transmission services to other local service providers who wish to serve the areas, and<br>(b) to provide these services at rates that are discounted to reflect the subsidies received. |

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| **Recommendation 8-12** | Contracts entered into between the U-CAN program and providers of backhaul services should specify the technical, operational and financial requirements that must be met to ensure that the points of presence provided by backhaul operators are open to other service providers on a fair and reasonable basis. These specifications should include such matters as<br>(a) physical access to buildings and other facilities,<br>(b) performance quality standards,<br>(c) high standards of security and scalability,<br>(d) collocation and modification of equipment, and<br>(e) rates for access and interconnection. |
| **Recommendation 8-13** | The U-CAN program should provide subsidies to broadband network providers by means of least-cost subsidy auctions. |
| **Recommendation 8-14** | Auctions should be run for large service areas at a time, in order to increase efficiencies of service provision. These service areas should be designated in consultation with provincial or territorial governments, after assessing current and planned coverage of existing broadband network operators. |
| **Recommendation 8-15** | In most cases, the U-CAN program should hold separate auctions for the backhaul network and local access facilities within each unserved area. Such auctions should generally be held at the same time. |
| **Recommendation 8-16** | The U-CAN program should enter into contracts for access and backhaul services with the service provider who<br>(a) demonstrates it has the necessary technical and financial qualifications to successfully deploy and operate the broadband backhaul or access service for the duration of the contract, and<br>(b) submits the lowest bid for the subsidy it requires to implement and operate the project. |
| **Recommendation 8-17** | Sufficient amounts of appropriate spectrum should be made available on a licensed or unlicensed basis to service providers who are awarded subsidies under the U-CAN program. |
| **Recommendation 8-18** | Recipients of U-CAN broadband access subsidies who fail to provide service on time and in accordance with U-CAN contract specifications should forfeit the subsidy and any spectrum assigned to them, and should be subject to contractual penalties. The U-CAN program should then hold a new auction to serve the area and reassign the related spectrum. |

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| **Recommendation 8-19** | The U-CAN auction process should be technologically and competitively neutral. Private sector service providers as well as regional and community organizations should be permitted to participate in the auctions, provided that they can demonstrate technical capability and financially sustainable business plans. |
| **Recommendation 8-20** | There should be effective tracking and periodic evaluation of the U-CAN program, and improved tracking and evaluation of other ongoing federal government broadband and connectivity programs. |

## Chapter 9 Policy-making and Regulatory Institutions

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| **Recommendation 9-1** | The government should ensure that the *Department of Industry Act* grants the Minister and the department a clear mandate and sufficient powers to effectively lead national telecommunications as well as information and communications technology policy development. |
| **Recommendation 9-2** | Industry Canada should make a multi-year commitment to fund ongoing policy research to support improved policy making and regulation in the telecommunications and information and communications technology sectors. Research grants should be awarded by a qualified, independent panel, and the research results should be made publicly available in a timely manner. |
| **Recommendation 9-3** | Telecommunications data collection and reporting should be improved in the following manner:<br>(a) The CRTC should continue, for at least five more years, to publish annual reports on the status of competition in Canadian telecommunications markets and on the deployment and accessibility of advanced telecommunications infrastructure.<br>(b) The CRTC, Industry Canada and Statistics Canada should form a working group to determine requirements for additional data to support improved regulation, research and policy making, and to determine which institution should collect the information.<br>(c) The CRTC should conduct a public consultation to determine if additional data should be collected from telecommunications service providers and how best to make industry data available in a timely manner. |

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| **Recommendation 9-4** | The Minister of Industry should be mandated by legislation to undertake a comprehensive review of telecommunications policy and regulation every five years. |
| **Recommendation 9-5** | The policy direction power should be transferred into a more effective policy-making instrument by<br>(a) requiring the government to issue a public notice containing a proposed direction and the reasons for it and giving the public a reasonable opportunity to comment on it,<br>(b) repealing the current requirement to refer a proposed policy direction to parliamentary committees for review, and<br>(c) repealing the Cabinet power to review individual CRTC telecommunications decisions. |
| **Recommendation 9-6** | The *Canadian Radio-television and Telecommunications Commission Act* should be amended to reduce the number of CRTC commissioners from 13 to 5. The five commissioners should deal with both telecommunications and broadcasting matters. Any additional commissioners who might be appointed for broadcasting regulation purposes should not deal with telecommunications matters. |
| **Recommendation 9-7** | The government should adopt an open, professional recruitment process for CRTC commissioners who are responsible for telecommunications regulation. |
| **Recommendation 9-8** | The *Canadian Radio-television and Telecommunications Commission Act* should be amended to include a requirement to advise incumbent commissioners, no later than six months prior to the end of their appointed term, on whether or not they will be reappointed and, if so, the length of their new term. |
| **Recommendation 9-9** | There should be increased flexibility to set compensation levels for commissioners and a small number of expert staff positions at market levels, including the potential for performance-based incentives, to permit the CRTC to attract and retain highly qualified individuals to meet the professional requirements of the proposed new regulatory framework. |
| **Recommendation 9-10** | The CRTC should be granted clear authority and sufficient budget to retain outside expert consultants at market rates when they are required to provide specialized expertise or to meet heavy workload requirements. |

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| **Recommendation 9-11** | The CRTC should establish and adhere to published performance service standards for the various forms of regulatory proceedings it runs. These standards should be developed in consultation with the telecommunications industry and the public. |
| **Recommendation 9-12** | When the CRTC proposes to introduce or to change a regulatory approach or rule, it should routinely publish a notice seeking comments on specific proposals or options being considered. The notice should set out the background and the supporting rationale for the proposed approach or options. |
| **Recommendation 9-13** | The *Telecommunications Act* should be amended to grant the CRTC power to levy administrative monetary penalties at levels similar to those under the *Competition Act*. The CRTC should also be granted specific power to make related non-monetary orders designed to enhance the deterrent effect of the penalty. |
| **Recommendation 9-14** | The *Telecommunications Act* should be amended to remove the need to obtain the consent of either the Minister or the CRTC to initiate a prosecution under the Act. |
| **Recommendation 9-15** | The *Telecommunications Act* should be amended to authorize the CRTC to refer possible offences under that Act or any other telecommunications legislation to the Attorney General of Canada for investigation and possible prosecution. |
| **Recommendation 9-16** | The *Telecommunications Act* should be amended to increase the fines for offences under the Act to levels similar to those in the *Competition Act*. |
| **Recommendation 9-17** | The government should review the *Telecommunications Act* to link potential fines for offences more directly to the gravity of the offence committed and to add a due diligence defence in appropriate cases. |
| **Recommendation 9-18** | The *Telecommunications Act* should be amended to provide that, in any civil court proceeding, a CRTC decision regarding the liability of a telecommunications service provider for a breach of the Act or regulatory measures established under the Act should be *prima facie* evidence of such liability. |
| **Recommendation 9-19** | The *Telecommunications Act* should be amended to ensure that it does not place limitations on the right to sue for damages in the courts for a breach of the Act or a breach of contract. |
| **Recommendation 9-20** | The *Telecommunications Act* should be amended to repeal the requirement to obtain leave to appeal a decision of the CRTC to the Federal Court of Appeal on any question of law or of jurisdiction. |

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| **Recommendation 9-21** | The *Telecommunications Act* should be amended to ensure that the CRTC has the power to mandate alternative dispute resolution both by the CRTC itself and on an outsourced basis in appropriate cases. |
| **Recommendation 9-22** | The CRTC should replace the obligation to file detailed studies and other documentation to justify applications for tariff approvals with a regime under which applicants certify compliance with a list of relevant regulatory requirements. |
| **Recommendation 9-23** | The CRTC should establish a single code of the regulatory rules that apply to telecommunications markets by consolidating and updating rules now contained in various decisions, orders, rules, regulations, public notices, circulars and other documents. This consolidated approach to rule making should be applied prospectively in the case of new CRTC rules. In the case of the CRTC's existing rules, the consolidation should be completed within three years. |
| **Recommendation 9-24** | The *Telecommunications Act* should be amended to provide that anyone operating telecommunications facilities is entitled to obtain a certificate of registration as evidence of its authority to operate as a telecommunications service provider in Canada. |
| **Recommendation 9-25** | The requirement to obtain a licence under the *Telecommunications Act* to provide basic international telecommunications services should be repealed and replaced with a simple registration regime. |
| **Recommendation 9-26** | The requirement to obtain a licence under the *Telecommunications Act* to construct or operate an international submarine cable should be repealed and replaced with a simple registration regime. |
| **Recommendation 9-27** | The CRTC should review, update and consolidate its *Telecommunications Rules of Procedure*. The updated Rules should include changes required as a result of implementing the recommendations of this report. |
| **Recommendation 9-28** | The CRTC should review its *Rules of Procedure* at least every five years, and update them continuously. |
| **Recommendation 9-29** | The CRTC should enact a rule or regulation establishing the criteria for the awarding of costs in proceedings before it. The criteria should be based on the principles that costs shall be awarded to successful complainants in clear cases of inappropriate behaviour and against them in clear cases of frivolous complaints. |

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| **Recommendation 9-30** | The government should review the issue of public interest group participation in telecommunications regulatory proceedings. Funding for such participation should come from a multi-year commitment by government to subsidize such participation, rather than costs awards imposed by the CRTC on individual telecommunications service providers. |
| **Recommendation 9-31** | The *Telecommunications Fees Regulations*, 1995 should be amended so all telecommunications service providers are required to pay a *pro rata* share of the annual costs of CRTC and TCT telecommunications activities. Shares should be calculated using the same approach and exemptions as are used under the existing subsidy regime for local residential service in high-cost areas. |

# Annexes

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# Annex A
## Market Analysis of Broadband Service in Rural and Remote Canada

Because of the increasingly important role information and communications technologies (ICTs) will play in supporting economic development, improved delivery of public services and social inclusion, the Panel concludes that affordable and reliable broadband services should be available in all regions of Canada by 2010, and recommends that this be a central goal of the national ICT adoption strategy.

In developing recommendations on how this goal could be achieved, one of the key questions facing the Panel was whether market forces alone could meet the objective of providing ubiquitous broadband access.

Submissions received by the Panel during the consultation process presented different views on this question. On the one hand, a study by the consulting firm SECOR[1] suggested that market forces would indeed be capable of bringing broadband coverage to every corner of Canada. On the other hand, the majority of participants in the Whitehorse Access Forum[2] doubted the likelihood of an entirely market-funded solution. Given this divergence of views, the Panel decided to undertake its own analysis.

The Panel's study found that although the broadband market is likely to continue to expand in rural and remote areas, it is unlikely to completely bridge the coverage gap, leaving a substantial population without access to high-speed Internet service in the medium term.

The Panel's study began by mapping the current availability of high-speed Internet service in Canada. Using geospatial software, data on the location of broadband access services were plotted to as fine level of detail as possible on a map of Canada. These data were provided by more than 80 facilities-based, high-speed Internet service providers, including wireless, cable modem and DSL providers, and were current as of mid-2005. Additional data gathered from provincial, territorial, and federal broadband program plans were then added to the map. These data included the location of all the broadband points of presence (PoPs) planned to be established by 2007 through the Alberta Supernet, Network BC, Saskatchewan Community Net and New Brunswick DSL projects.

To estimate how many people will have access to broadband by 2007, very detailed population data from the 2001 Census were added to the map.[3] As a result of this analysis, the Panel estimated that 26 788 000 Canadians, or 89.3 percent of Canada's total population of 30 005 000, will have one or more land-based, high-speed Internet access services available to them by 2007. The total population has increased since 2001 when the census counted

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[1] Appendix E-3 of the Bell Canada submission to the first round of comments to the Consultation Paper, titled "Broadband Access for Every Canadian Home: The Business Case" by SECOR.

[2] The Access Forum was held in Whitehorse, Yukon on September 9, 2005. The Panel heard presentations and discussion related to broadband connectivity and the difficulties of implementing it in rural and remote areas.

[3] Census Block population data from Statistics Canada Geosuite 2001 Census Catalogue no. 92F0150XCB.

30 005 000; however, the rural and remote population has remained constant. An additional 200 000 Canadians are expected to receive a satellite-based broadband service offering as a result of the National Satellite Initiative within this time frame. However, this would leave some three million Canadians without access to broadband by 2007.

Having estimated the size of the population that is likely to remain unserved by 2007, the Panel investigated whether and to what extent a sustainable economic case could be made to provide broadband service to these three million Canadians.

To do this a computer model was constructed. The model assumed that, to achieve ubiquitous access as economically as possible, these three million Canadians would access broadband either through land-based, fixed wireless technology such as WiMAX or in the most remote cases through a Ka-Band satellite solution.[4]

In addition, the model assumed that because of the limited capacity of current satellite systems, the maximum number of broadband subscribers in areas not currently covered by a land-based service that could be served by Ka-Band satellite would be 40 000.[5] Since 40 000 subscribers is equivalent to a population of approximately 300 000 people, the model assumed that 2.7 million Canadians would need to be served by land-based wireless technology in order to reach the goal of ubiquitous access.[6]

The population of 2.7 million people that would need to be connected by land-based wireless was segmented into some 6000 geographical areas, each of which contained a central place with a local maximum population density such as a village or dense cluster of dwellings that could logically house a broadband PoP. The typical distance between the centre points of adjacent geographical areas was between 10 and 20 kilometres. This reflected the anticipated spacing of microwave links at line-of-sight on moderately high towers.

In order to help determine which of these geographical areas could potentially be served by market forces alone and which would require public subsidy, the model began by identifying the most efficient way of using fixed wireless technology to provide access to broadband in each of the 6000 geographical areas, beginning with the most populous areas and working toward the least populous areas.

With networking requirements identified, the economic viability of providing broadband access to each of the 6000 geographical areas was then tested. This was done by estimating the cost of building and operating the transmission towers and other facilities required to make broadband available in each area, and then comparing these costs with potential revenues from the population living in the area. When the cost of making broadband available exceeded projected revenues over a five-year period, the area was considered economically unviable and therefore unlikely to be served by market forces alone. This analysis found that areas with fewer than 1200 people living within a 5–10-kilometre radius from the broadband PoP generally were not economic to serve, and that the economics worsened as the terrain became more mountainous.

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[4] Fixed wireless service is the most economical rural solution studied, requiring the user to have a small flat panel antenna fed from the personal computer typically via a wire and mounted to the side of her or his home, directed at the main transmission tower to achieve a connection of up to 2 megabits per second to the Internet.

[5] The figure of 40 000 remote subscribers was chosen rather than the theoretical total capacity of 125 000, since it could not be assumed that the entire satellite would be reserved for the most remote and costly customers from a land-based perspective.

[6] The figure of 300 000 population was derived from the base case of a rural take rate of 30 percent, and a population to household ratio of 2.2 applied to the 40 000 subscribers.

In conducting this analysis, various assumptions were made with respect to the monthly price of Internet service, the CAPEX and the OPEX, the discount rate, topography as a factor of cost[7] and the take-up rate of a high-speed Internet service.

In the model, the topography factor distributed tower locations more closely in areas of hilly or mountainous terrain in proportion to the bumpiness. The economic case became more difficult as the terrain became bumpier and as the population became less dense. The estimated cost of providing broadband access increased by 50 percent or more in approximately one-quarter of the areas because of topography.

Capital costing of wireless Internet access is dependent on the cost of the tower, the backhaul radios and the access point that communicates directly with subscribers on the ground. A study of 20 BRAND wireless business cases concluded the cost of a wireless PoP is approximately $100 000. This figure was verified by a large wireless Internet service provider operating in western Canada. It is also generally consistent with SECOR's analysis, which estimates the total cost at closer to $130 000.

Using this base cost, the study estimated that about 1.2 million Canadians could be served economically with new WiMAX technology (i.e. broadband access providers could potentially break even in five years using this technology). In addition, as previously mentioned, the study estimated that the 300 000 most difficult to reach Canadians could be served by a Ka-Band satellite solution. According to the model, this would mean that about 1.5 million Canadians, or 5 percent of the population, could not be served economically.[8]

On the basis of this analysis, the Panel concluded that a specific, targeted government subsidy program should be established to ensure that affordable and reliable broadband access is available to the significant number of Canadians who are unlikely to be served by market forces alone by 2010.

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[7] Topography was finely mapped and a factor of terrain "bumpiness" was calculated as the standard deviation of elevation among hundreds of evenly distributed sample locations for each unit of geography based on data taken from the Natural Resources Canada Digital Elevation Model (Can3d30).

[8] Unlike the SECOR methodological assumption that among the remaining unserved areas the economic ones would subsidize the uneconomic ones, the Panel's study assumed the market would make decisions on an area-by-area basis, halting investment when it was no longer profitable to dig deeper geographically.

# Annex B

## List of Persons and Organizations Making Submissions

Note: The submissions may be viewed online at the following website:
**http://www.telecomreview.ca/epic/internet/intprp-gecrt.nsf/en/h_rx00025e.html**

Accelteon Management Consulting
Alcan Inc.
Alcatel Canada
Aleph Experts-Conseils
Aliant Telecom Inc.
Alliance of Canadian Cinema Television and Radio Artists (ACTRA)
Alliance québécoise des techniciens de l'image et du son (AQTIS)
AOL Canada Inc.
APT Prophet Technologies Incorporated: Maxwell J. Toms
ARCH: A Legal Resource Centre for Persons with Disabilities
ARDICOM Digital Communications Inc.
Arney, Patricia
Association des producteurs de films et de télévision du Québec (APFTQ)
Association des réalisateurs et réalisatrices du Québec (ARRQ)
Association of Canadian Community Colleges (ACCC)
Association québécoise de l'industrie du disque, du spectacle et de la vidéo (ADISQ)
Astral Media Inc.
ATCO Electric Ltd.
Atlantic Provinces Economic Council (APEC)
Audlaluk, Larry
BC Rural Women's Network
BC3 and NetWorkBC
Bell Canada
Board of Trade of Metropolitan Montréal
Brand, Chris
British Columbia Hydro and Power Authority (BC Hydro)
Brockville Public Library
Business Council of British Columbia
Cablevision du Nord de Québec Inc. (CNQ)
Call-Net Enterprises Inc.
Canadian Advanced Technologies Alliance and the Canadian Association of Internet Providers (CATA–CAIP)
Canadian Alliance of Publicly-Owned Telecommunications Systems (CAPTS)
Canadian Association of Broadcasters (CAB)
Canadian Bankers Association (CBA)
Canadian Bar Association, National Competition Law Section
Canadian Cable Telecommunications Association (CCTA)

Canadian Chamber of Commerce
Canadian Electricity Association (CEA)
Canadian Independent Record Production Association (CIRPA)
Canadian Internet Policy and Public Interest Clinic
Canadian Library Association (CLA)
Canadian Manufacturers and Exporters (CME)
Canadian Pacific Railway Company (CPR)
Canadian Radio-television and Telecommunications Commission (CRTC)
Canadian Recording Industry Association (CRIA)
Canadian Research Alliance for Community Innovation and Networking (CRACIN)
Canadian Telecommunications Employees' Association (CTEA)
Canadian Wireless Telecommunications Association (CWTA)
CANARIE Inc.
CANCAP
CGI Group Inc.
Chambre de commerce de Québec (CCQ)
CHUM Limited
City of Calgary
Coalition des Fournisseurs Internet du Québec
Coalition for Better Competition
Coalition for Competitive Telecommunications
Communications, Energy and Paperworkers Union of Canada (CEP)
Communications Management Inc.: Kenneth J. Goldstein
Communications Research Centre Canada (CRC)
Competition Bureau
Conférence régionale des éluEs du Bas-Saint-Laurent
Conseil du partonat du Québec (CPQ)
Consumers Association of Canada
Contact North
Crawley, Pat
Cybersurf Corp.
Directors Guild of Canada (DGC)
DNA13 Inc.
ENMAX Power Corporation
Ergas, Henry
Federation of Canadian Municipalities
First Nations Technology Council
Geist, Michael
Global Television Network Inc.
Goldstein, Dr. Stanley
Government of Alberta
Government of British Columbia: Office of the Chief Information Officer; and Minister of Economic Development, Minister of Labour and Citizen Services, Minister of Small Business and Revenue

Government of New Brunswick: Minister of Business
Government of Newfoundland and Labrador: Minister of Innovation Trade and Rural Development
Government of Northwest Territories
Government of Nova Scotia
Government of Ontario: Ministry of Economic Development and Trade
Government of Prince Edward Island: Minister of Development and Technology
Government of Saskatchewan
Government of Yukon
Hadfield, Perry
Hudson, Dr. Heather E.
Hydro-Québec Distribution
Independent Members of the Canadian Association of Internet Providers (IMCAIP)
Information Technology Association of Canada (ITAC)
International Institute of Telecommunications
Keewaytinook Okimakanak (the Kuhkenah Network, K-Net)
Kitikmeot Corporation
Kitikmeot Economic Development Commission
MacPherson, Debbi
Manitoba Energy, Science and Technology
Manitoba Information & Communications Technologies (MICT)
Matthews, Terry
McDonald, Ben
MCI Canada
McLean, Robert
McOrmond, Russell
Montreal Economic Institute
Montreal International
Motorola Canada Limited
MTS Allstream Inc.
Mullins, Roy
Municipal Information System Association of Canada (MISA–ASIM Canada)
Municipality of Clyde River
National Anti-Poverty Organization
Network BC
Neufeld, Kathaleen
Nortel
North Peace Tribal Council (NPTC): Lloyd A. MacKenzie
NorthernTel
Northwestel Inc.
Nunavut Broadband Development Corporation (NBDC)
Office of the Commissioner of Official Languages
Ontario 9–1–1 Advisory Board (OAB)
Ontario Chamber of Commerce (OCC)

Ontario Telecommunications Association (OTA)
Optical Regional Advanced Network
Orecklin, Mel
Ottawa Centre for Research and Innovation (OCRI)
Ottawa Chamber of Commerce
Paterson, Nancy
Primus Telecommunications Canada Inc.
Public Interest Advocacy Centre
Quebecor Media Inc.
Ramirez, Ricardo
Real Property Association of Canada (RealPac)
Research on Information and Communication Technologies with Aboriginal Communities (RICTA)
Réseau d'informations scientifiques du Québec (RISQ)
Roberts, Jeff
Rogers Communications Inc.
Sakku Investments Corporation
Shaw Communications Inc.
Smart Communities Society
Société d'Administration des Tarifs d'Accès des Télécommunicateurs (SATAT)
Société de gestion du réseau informatique des communications scolaires
Société des auteurs de radio, télévision et cinéma (SARTEC)
Stark, Chris and Marie
Stewart, Art
Télébec
TeleCommunities Canada
Telesat Canada
TELUS Communications Inc.
TeraGo Networks Inc.
Township of the Archipelago
Tretheway, Dr. Michael W.
Tucows Inc.
United Telecom Council of Canada (UTC Canada)
University of Manitoba
University of Toronto
Van Horne Institute for International Transportation and Regulatory Affairs
Vancouver Board of Trade
Wireless Nomad Co-op
Women North Network
Womenspace
Woods Bay Community Association: Glyn Jones
Writers Guild of Canada (WGC)
Xit Telecom Inc.
Yak Communications (Canada) Inc.

# Annex C
## Members of the Telecommunications Policy Review Panel Secretariat

Executive Director — Allan MacGillivray

**Research and Analysis**
Arif Abdulla
Jerry Beausoleil
Andrew Briggs
Gerry Briggs
Ian Currie
Lawrence Dunbar
Ellen Godfrey
George Hariton
Anthony Keenleyside
Sarah Lussier
Don MacLean
Robert Noakes
Rajiv Pancholy
Brian Rumas
Andrew Sharpe
David Stinson
Alison Surette
Christopher Taylor
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**Administrative Support**
Orla Comerton
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H3Creative Inc. — Roberto (Bob) Herrera
Bob Lyle

# Annex D
## Glossary and List of Acronyms

**2.5G** (so-called "second-and-a-half generation") service; see GPRS.

**3G** (third-generation mobile telephone technology) provides an enhanced range of high-speed multimedia services (meeting the International Telecommunication Union's IMT-2000 specification).

**ACCC** (Australian Competition and Consumer Commission) is responsible for ensuring that individuals and businesses comply with the Australian competition, fair trading and consumer protection laws, including those sector-specific provisions that address competition issues in the telecommunications industry.

**ACMA** (Australian Communications and Media Authority) is responsible for the regulation of broadcasting, radiocommunication, telecommunications and online content in Australia.

***Ad hoc*** is a Latin phrase meaning "for the special or particular purpose."

**Administrative incentive pricing** applies higher fees in areas where there is a high demand (congestion) and lower fees where there is less demand.

**Allocative efficiency** is achieved when prices are close to cost, which ensures that all customers who value a product at more than its cost are able to purchase it and customers who value it at less than its cost do not purchase it.

**Analog** refers to communication in which the information is represented by a continuous electronic representation of itself in a communication channel.

**Backbone** refers to the core network segments that connect two or more network nodes together for the purpose of transiting network traffic.

**Backhaul** refers to the transmittal of data to a network backbone. In wireless network technology, backhaul refers to the transmission of voice and data traffic from a cell site to a switch; that is, from a remote site to a central site. In satellite technology, backhaul relates to the transmittal of data to a point from which it can be uplinked to a satellite.

**Bandwidth** is the maximum data-carrying capacity of a telecommunications connection as a result of the range of frequencies available to be occupied by signals, and the modulation techniques utilized, usually expressed in terms of hertz (Hz) in analogue systems and as a number of bits per second in digital systems.

**Bluetooth®** is an industrial specification for wireless short-range (a few metres) networks. Bluetooth provides a means to connect and exchange data between devices such as mobile phones, personal digital assistants (PDAs), personal computers (PCs), printers, digital cameras and laptops via a secure, low-cost, globally available radio frequency.

**BRAND** (Broadband for Rural and Northern Development) is a federal government pilot program that assists Aboriginal, rural and northern communities to establish high-capacity Internet access services.

**Cable modem** is a device that allows a computer end terminal to initiate and effect a dedicated communications link via a coaxial cable ("cable television") network, usually using Internet Protocol (IP) at the network layer and interconnecting with the Internet to provide the cable modem with Internet access.

**CAP** (Community Access Program) is a federal government initiative administered by Industry Canada that helps people in communities across Canada benefit from public access to computers and the Internet.

**Capital expenditure** is the cost of procuring, constructing and installing new, durable plant, machinery and equipment, whether for replacement of worn or obsolete assets, or as additions to existing assets, or for lease or rent to others.

**CCA** (capital cost allowance) is a yearly deduction or depreciation on the cost of certain assets, which is used for income tax purposes.

**Circuit** refers to the physical connection of channels, conductors and equipment between two given points through which an electric current may be established.

**CISC** (CRTC Interconnection Steering Committee) is an organization established by the Canadian Radio-television and Telecommunications Commission (CRTC) in *Implementation of Regulatory Framework: Development of Carrier Interfaces and other Procedures,* Telecom Public Notice CRTC 96-28, August 1, 1996, to assist in developing information, procedures and guidelines as may be required in various aspects of the CRTC's regulatory activities.

**CITEL** (Inter-American Telecommunication Commission) is an entity of the Organization of American States, in which government and private sector representatives meet to coordinate regional efforts to develop the Global Information Society.

**CLEC** (competitive local exchange carrier) offers local telecommunications service in competition with incumbent service providers.

**Cognitive radio** is a radio or system that senses its operating environment and can be trained to dynamically and autonomously adjust its radio operating parameters.

**Constant dollar** calculations factor out the impact of inflation and allow for comparisons by converting the value of the dollar in other time periods to present-day dollars.

**Contribution fund** is a national contribution collection mechanism introduced by the CRTC through *Changes to the Contribution Regime,* Decision CRTC 2000-745, November 30, 2000. Pursuant to ss. 46.5(1) of the *Telecommunications Act,* the CRTC requires telecommunications service providers to contribute to the contribution fund to support continuing access by Canadians to basic telecommunications services in HCSAs.

**CRC** (Communications Research Centre) is a federal government-operated advanced communications research and development lab.

**Cross subsidy** occurs when a company sells a product below its incremental cost, which is financed by a more profitable product or products offered by the company.

**Current dollar** calculations involve the statement of economic activity in present-day dollars.

**Dark fibre** is an optical fibre infrastructure that is in place but is not connected to in-service transmission equipment and therefore is without any optical or electronic signalling.

**Deferral account** was established by the CRTC through *Regulatory Framework for Second Price Cap Period,* Telecom Decision CRTC 2002-34, May 30, 2002, and *Implementation of Price Regulation for Télébec and TELUS Québec,* Telecom Decision CRTC 2002-43, July 31, 2002.

***Deus ex machina*** is a Latin phrase meaning a person or thing that appears or is introduced suddenly and unexpectedly and that provides a contrived solution to an apparently insoluble difficulty.

**Digital** refers to communication in which the information is approximated by a discrete series of on and off states that is an abstraction of its natural continuous form.

**DMT** (discrete multi-tone) is a robust signalling scheme used on copper wires to deliver data speeds required for DSL service.

**Downstream** in Internet access refers to traffic handled at the service provider end and terminated at the customer end.

**DSL** (digital subscriber line) is a specification for dedicated, full-duplex data service between a customer's premises and a service provider's point of presence via a conventional copper telephone wire's upper (4 kHz to 2.2 MHz) frequency band.

**DTH** (direct-to-home) satellite broadcasting is the distribution of video and audio signals from geostationary satellites to small dish antennas and satellite receivers.

**DTV** (digital television) uses digital modulation and compression to broadcast video, audio and data signals to television sets.

**Dynamic efficiency** is achieved when firms have the correct incentives to invest and innovate.

**Economic efficiency** is the maximization of economic welfare.

**Economies of density** occur when unit costs decline as volume of output increases at a given location.

**Essential facility** is a facility or service that is needed by a competitor so it can build its own network and/or offer competing services, but that cannot technically or economically be duplicated.

**EVDO** (evolution data optimized) is an evolution of the CDMA (Code Division Multiple Access)-2000 wireless standard. EVDO technology boosts the ability of CDMA wireless networks to provide data rates of several megabits (million bits) per second in a spectrally efficient fashion. EVDO technology is being deployed primarily by North American operators to provide third-generation mobile data services.

***Ex ante*** is a Latin phrase meaning "beforehand."

***Ex post*** is a Latin phrase meaning "after the fact."

**FCC** (Federal Communications Commission) regulates interstate and international communications by radio, television, wire, satellite and cable in the United States.

**Fixed wireless** is a method for provisioning a network segment between two fixed locations using wireless devices or systems, whether analogue or digital. Fixed wireless devices normally derive their electrical power from utility mains, as opposed to portable wireless devices that normally derive their power from batteries. Most fixed wireless systems rely on digital radio transmitters placed on rooftops, aerial towers or other elevated locations and achieve point-to-point signal transmission via a microwave platform. Unlike a satellite system, fixed wireless is a terrestrial technology.

**Frequency** is the specified band or range within an overall spectrum of electromagnetic radio waves used as a channel for sending or receiving communications.

**FTTH/FTTP** (fibre-to-the-home/fibre-to-the-premises) is a fibre terminating at a residence or office and originating at a switching facility, either a concentrator, remote or central office.

**FTTN** (fibre-to-the-node) refers to the installation of optical fibre to within several hundred metres of the home or office. At that point, optical signals are converted into electronic signals for delivery into the home or office.

**GPRS** (general packet radio service) is a packet-based air interface designed as a GSM overlay, permitting the use of GPRS as an optional data networking service on GSM-based networks, including interoperability with the wireline Internet. GPRS can theoretically offer near-broadband data over mobile, but practical multi-user implementations are constrained to much lower throughput rates closer to dial-up Internet speeds. GPRS is a so-called "second-and-a-half generation" (2.5G) service.

**GSM** (global system for mobile) is a TDMA (time division multiple access)-based protocol implementation and a member of the so-called "second generation" family of mobile protocols. It is deployed widely across Europe and around the world, especially at the 800, 900, 1800 and, in Canada, 1900 MHz frequency bands.

**HCSA** (high-cost serving area) refers to those areas where the cost of providing telephone service is so high that the CRTC has kept the price below cost, so as to maintain affordability, and has set up a subsidy mechanism to compensate service providers for the cap on their prices.

**HFC** (hybrid fibre coax) is a broadband access network architecture in which, initially, optical fibre is used to bring the signal closer to the customer's neighbourhood, and then coaxial cable is used to deliver signals to the customer's premises. Such hybrid fibre coax network topology is commonly used in contemporary cable networks for delivering video, Internet and VoIP signals.

**ICT** stands for information and communications technology.

**ILEC** (incumbent local exchange carrier) refers to existing telephone companies prior to the introduction of local competition.

**Interconnection** is the linking of at least two telecommunications network segments at a common physical point, where each interconnected network segment is managed by a separate party, in such a manner as to allow traffic from each party's network segment to be transferred onto the other party's network segment.

**IP** (Internet Protocol) is a connectionless, packet-switched network layer protocol for exchanging data between computers.

**IP address** is currently a 32-bit number that identifies each sender or receiver of information that is sent in packets across the Internet. IP addresses are assigned and overseen by the Internet Corporation for Assigned Names and Numbers (ICANN).

**IP-TV** (Internet Protocol television) refers to systems whereby television and/or video signals are distributed using a broadband connection over Internet Protocol.

**IPv4** (Internet Protocol version 4) is the version of IP that is in common use today. IPv4 was formalized as a standard in 1981 and has an address field limited to 32 bits.

**IPv6** (Internet Protocol version 6) is the emerging standard, which aims to rectify some of the problems seen with IPv4, in particular, the shortage of address space. It is the new proposed IP, with 128-bit addressing, auto configuration, new security features and support for real-time communications and multicasting.

**ISP** (Internet service provider) refers to any service provider, including providers of voice telephony or cable television services, that provides Internet connectivity on a retail or wholesale basis. Internet connectivity services include Internet access and Internet transit.

**ITU** (International Telecommunication Union), headquartered in Geneva, Switzerland, is an international organization within the United Nations organization where governments and the private sector coordinate global telecommunications networks and services.

**KHz** (kilohertz) refers to a unit of measurement of communication frequency defined as one thousand cycles per second.

**LEC** (local exchange carrier) offers local telecommunications service and includes both ILECs and CLECs.

**Mandated wholesale access** refers to the regulatory requirement that ILECs or other service providers make parts of their network available to their competitors at regulated rates.

**Market externality** exists where one person's actions generate benefits or costs that accrue to others and not to the actor. An example of a negative externality is production that generates pollution, the cost of which is borne by society and not by the producer. An example of a positive network externality is the addition of a subscriber to a telephone network, benefiting others who can reach an additional person.

**MHz** (megahertz) refers to a unit of measurement of communication frequency defined as one million cycles per second.

**MMS** (multimedia messaging service) is a wireless messaging service that adds images, text, audio clips and video clips to SMS.

**MOU** (minutes-of-use) refers to the holding time (length of time that a call makes use of the trunk or channel) or conversation time related to a call.

**MVNO** (mobile virtual network operator) is a mobile service operator that does not have its own licensed spectrum and does not have the infrastructure to provide mobile service to its customers. It does not own the network on which its voice and data traffic is carried. Instead, MVNOs lease wireless capacity from pre-existing mobile service providers and establish their own brand names different from the providers.

**Natural monopoly** exists when the entire market demand can be served at lowest aggregate cost by one supplier due to the nature of the economies of scale available, relative to total market size. Competition in such markets would likely be unsustainable due to the economies available to the incumbent supplier.

**NGN** (next-generation network) refers to the emerging computer network architectures and technologies.

**NSI** (National Satellite Initiative) was launched in October 2003 by Industry Canada in partnership with Infrastructure Canada and the Canadian Space Agency. It was created to make available affordable satellite capacity for the deployment of broadband services (such as tele-health, tele-education, e-commerce, etc.) to communities in the far to mid-north, and in isolated and remote areas of Canada, where satellite technology is the only practical broadband solution.

**OBSI** (Ombudsman for Banking Services and Investments) is an independent organization established to investigate unresolved complaints from small business customers and retail customers of banks, investment dealers, mutual fund dealers and investment fund companies.

**OECD** stands for Organisation for Economic Co-operation and Development.

**Ofcom** is the independent regulator and competition authority for the United Kingdom communications industries, with responsibilities across television, telecommunications and wireless communications services.

**OFDM** (orthogonal frequency division multiplexing) is a robust wireless modulation scheme used to boost speeds and spectral efficiency in wireless systems, having among its advantages the ability to relay data over non-line-of-sight paths.

**Packet** is a generic term for a bundle of data organized in a specific way for transmission. Data are broken up into packets for sending over a packet switching network. Each packet has a header containing its source and destination, a block of data content and an error-checking code. All the data packets related to a message may not take the same route to get to their destination; they are reassembled once they have arrived.

**PCS** (personal communications service) is a broad service description for communications protocols using radio frequencies in the 1900-MHz frequency band to provide mobile telecom services, including interoperability with the wireline PSTN. In Canada, PCS may be delivered using CDMA, TDMA or GSM TDMA protocols. Outside Canada and the U.S., the PCS service description often refers to the 1800-MHz frequency band.

**Phishing** refers to the impersonation of a trusted person or organization in order to steal a person's personal information, generally for the purpose of "identity theft."

**PoP** (point of presence) is a location that a LEC has designated as an interconnection site, and that may or may not contain a switch.

**Price cap** regulation uses a formula, set in advance, to determine the maximum allowable price increases for a firm's services over a specific period of time. The firm is encouraged to become more efficient, as it is allowed to keep the benefits of its productivity gains.

**PSTN** is an acronym for public switched telephone network.

**Reseller** is a company that engages in the subsequent sale or lease on a commercial basis, with or without adding value, of a distinct telecommunications service or distinct telecommunications facilities provided by a supplier generally on a wholesale basis.

**Right-of-way** is a form of easement. It enables a person to use a portion of land that is owned by another person in a particular way and for a limited purpose. For example, in a telecommunications context, a right-of-way might enable a carrier to bury cable or erect support structures on land owned by a third party.

**SchoolNet** is a partnership of the federal government with the provincial and territorial governments, the education community and the private sector, which promotes the effective use of ICT in learning.

**SDR** (software-defined radio) is a radio communication system that uses software to control a variety of modulation techniques, wide-band or narrow-band operation, communications security functions and waveform requirements of current and evolving standards over a broad frequency range.

**SMS** (short messaging service) is a wireless messaging service that permits the transmission of a short text message from and/or to a digital mobile telephone, regardless of whether the transmission originates and terminates on a mobile telephone, originates on a mobile telephone and terminates on a computer, or originates on a computer and terminates on a telephone.

**Spam** generally refers to any bulk commercial email sent without the express consent of recipients.

**Spectrum** refers to radio-frequency hertzian waves used as a transmission medium for cellular radio, radiopaging, satellite communication, over-the-air broadcasting and other services.

**Spectrum cap** limits the amount of spectrum that any single company is allowed to acquire.

**Spectrum refarming** is a process of redeploying spectrum from existing users and reallocating it to others.

**Spyware** is software that collects information about a computer user and may also modify the operation of a user's computer without the user's knowledge or consent.

**Sunk costs** are expenditures that have been incurred and cannot be recovered if operations are discontinued.

**Supra-normal profits** are profits that are larger than would be expected on average for an investment of comparable risk in a competitive financial market.

**Switch** is typically an intelligent electronic device capable of forwarding voice and data communications traffic from a multitude of sources to various destinations.

**TAPAC** (Terminal Attachment Program Advisory Committee) is an advisory committee that recommends to Industry Canada technical requirements and procedures for attaching terminal equipment to the facilities of telecommunications service providers.

**TCA** (Telecommunications Consumer Agency) is a proposed new "ombuds office" that would have the authority to resolve complaints from individual and small business retail customers; it is addressed in Chapter 6 of this report.

**TCT** (Telecommunications Competition Tribunal) is a proposed transitional tribunal that would address competition issues in the telecommunications sector; it is addressed in Chapter 4 of this report.

**Terminal equipment** is any fixed or mobile apparatus, including telephone handsets, private branch exchange (PBX) switching equipment, key and hybrid telephone systems and add-on devices.

**TSP** stands for telecommunications service provider.

**U-CAN** (Ubiquitous Canadian Access Network) is a proposed specific targeted government subsidy program; it is addressed in Chapter 8 of this report.

**Upstream**, in Internet access, is traffic originating at the customer end and travelling toward the service provider, possibly for transit to other points on the Internet.

**UWB** (ultra-wideband) is a wireless technology that can operate at very low-power density to communicate at high data rates over short distances using brief and rapid pulses of energy, as opposed to specific communications frequencies.

**VoIP** (voice over IP) is a software application that allows the use of IP packet networks, such as the Internet, to make ordinary (voice) telephone calls.

**WDM** (wavelength division multiplexing) equipment transmits several wavelengths of light simultaneously over a single fibre, allowing for extremely rapid broadband communication of data over long distances.

**WiFi®** is a limited-range wireless networking protocol based on the 802.11 family of standards. It uses spectrum in the 2.4 GHz range to exchange data at broadband speeds.

**WiMAX** is fixed wireless standard 802.16 set by the Institute of Electrical and Electronics Engineers (IEEE). It allows for long-range wireless communication at as much as 70 Mbps to over 50 kilometres, and can be used as a backbone Internet connection to rural areas.

**XML** (extensible markup language) is a general-purpose markup language for creating special-purpose markup languages, capable of describing many different kinds of data. Its primary purpose is to facilitate the sharing of data across different systems, particularly systems connected via the Internet.

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